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*Illustrated.

Trade Opportunities in South America

At the request of the *Railway Age Gazette*, F. Lavis has written an article on Trade Opportunities in South America, which is published elsewhere in this issue. The article is especially intended to show what are the openings for the sale of American railway supplies in the markets of South America, what difficulties must be overcome in winning these markets and how this may be done. Mr. Lavis is well fitted to discuss this subject, for until quite recently he was engaged in railway enginering work in Argentina, and his thorough knowledge of conditions in that country, especially, was shown by his articles on the railways of Argentina, published in the issues of the *Railway Age Gazette* for March 27 and April 3, 1914. Mr. Lavis is not entirely optimistic regarding the opportunities for the early development of a large market for American manufacturers in South America, but with respect to the general subject neither is he at all pessimistic. He believes there is a large potential market to the south of us which our manufacturers of railway supplies and other articles can capture if they will undertake to do so systematically and persistently, and can secure the co-operation and support of the large financial interests of this country. Mr. Lavis' article is one of the best discussions of the subject that have appeared, and will well repay a careful reading by those interested in the matter.

Safety First in Motion Pictures

On the New York Central, the Lackawanna, the Santa Fe and the Burlington "Safety-first" is henceforth to be taught by means of a love story, embellished with a suitable percentage of smiles and kisses to produce the proper effect, according to the latest efficiency tables of Taylor and Emerson. It is to be done by a motion-picture exhibition, which has been prepared by Mr. Dow of the New York Central, and a description of which the reader will find on another page. At first thought this might seem to be a rather light and questionable treatment of a very serious subject; but love and tragedy are skilfully combined, and no one who sees Mr. Dow's pictures will question their effectiveness. Surely, no one who has noticed the romances and the very readable pages of domestic fiction which fill some of the brotherhoods' monthly magazines can doubt that railway employees appreciate matters of "human interest." The safety-first movement is essentially one which depends on exhortation and appeal, rather than on systematic commands and instruction; and arguments addressed to the emotions, rather than to the intellect alone, are wholly legitimate. And the men who can derive the most benefit from this movement are, probably, the freight train men; those from whose everyday life the lessons here shown have been taken. For women and children and for general audiences, some of the scenes are of a pretty startling character, bordering on the class which, in ordinary shows, has been condemned in some quarters as too harrowing; but for men who work about trains and in freight yards the lessons are none too vivid. For, in sober truth, most of these men, for some reason or other, do not fully realize what a considerable percentage of their fellow-workmen are killed or injured by carelessness each year.

Increase in Mileage Book Rates

That the members of the Illinois Commercial Men's Association are not unanimous in opposing the advance in rates for passenger mileage books, and that the secretary of that organization apparently is individually responsible for the circular letter containing blank forms of protest to be filled out and sent to the Interstate Commerce Commission, which was discussed in our last week's issue, is indicated by another letter on the subject by Lorenzo Norvell, of Fairbanks, Morse & Co., which is published elsewhere. In the meantime, moreover, the Interstate Commerce Commission has allowed the increase to go into effect on October 1, without suspension, subject to investigation on any complaint that may be filed. This was no more than fair, since the suggestion for increasing passenger rates came from the commission itself. Mr. Norvell enters a most emphatic protest against the attempt to incite the commercial travelers into a movement against the increase, and proposes to institute a counter-campaign by sending copies of his letter to the press and to other large firms that he feels are in accord with him on this subject. His action suggests

an opportunity for those who believe that the prosperity of the country will be enhanced by improving the condition of the railways. Mr. Norvell cites some very strong reasons why commercial houses and traveling salesmen, instead of considering that they are to be the victims of the increased cost of mileage books, should be among the first to aid in placing the railway passenger service on a paying basis. He says, "Our great need today is service. We want trains in plenty to enable traveling men to get over their territory quickly without loss of time. We also want our freight handled promptly, and when we get service we should be fair enough to pay for it." That sums up the whole argument. He adds that he cannot see why traveling salesmen should get a better rate on transportation than individuals, especially when in nine cases out of ten their firms pay their expenses. It is often said that mileage books should be sold at a lower rate than single tickets, on the principle that wholesale prices should be less than retail, and this idea is still recognized in the new rate. While the mileage book rate has been advanced from 2 to 2¼ cents the roads are preparing to advance their ordinary rates to 2½ cents, so that the mileage book rate will still represent a 10 per cent discount. But the principle of wholesale rates is based on the fact that the cost of wholesale service is less than that of retail service. In the case of mileage books the only reduction in cost to the railways lies in the sale of a book at one time instead of numerous tickets, and in the prepayment. The service rendered to those travelers making use of mileage books is in all other respects a retail one.

THE YARDMASTER AN EXECUTIVE

ONE fact which deserves special emphasis, and which is brought out by several contributors to the discussion of the Operation of Terminal Yards, some of whose papers are published elsewhere in this issue, is that the general yardmaster in charge of an important terminal is an executive officer who should be freed of petty details and clerical duties to a large extent, so that he will be able to spend a large portion of his time out in the yard, where the work is being done and the money spent.

It is only by being free to go from one point of local congestion or difficulty to another that he can direct operations most intelligently, and it is only in this way that he is able to secure a first-hand knowledge of the exact conditions in the yard and is able to improve practices to the end that a high standard of efficiency may be maintained. The yardmaster who permits himself to be tied to his desk continuously by clerical duties reduces himself very largely to the rank of a clerk, while the railroad company which requires him to devote a large portion of his time to such work is paying a yardmaster's salary for no more than a clerk's work.

It is generally observed that the yard is best operated in which the yardmaster appears to have the least to do with the handling of routine business. By this it is not meant to imply that he should have no actual duties, but it is distinctly to his credit if he so organizes his forces that routine work requires only his casual attention. It has been said of the late E. H. Harriman that he considered that a man who would allow his deck to become stacked up with papers was not fit for an important executive position since, in allowing himself to be buried in a mass of details, he overlooked the larger opportunities. The same criterion can be applied to the work of a yardmaster. If he is engrossed in a multitude of routine details, he will not observe a congestion arising in some portion of his yard until it has become so serious as to affect the operation of the entire yard.

The analogy drawn by one contributor between a yard and a stream of water is pertinent. Let any facility of a yard, even one classification track, become congested and the effect is soon felt in all other parts of the yard. The serious blockade of 1907 in the terminal district of Chicago was caused by the inability of two or three roads to accept interchange traffic from connecting lines because of lack of facilities, and the ultimate result was that practically every road in that district was blocked with traffic which it was unable to deliver to other lines.

The larger the yard the greater is the necessity for the general yardmaster to be free to observe conditions. Entirely aside from the advantage discussed above, close supervision is a most potent factor in the elimination of expensive switching practices and the introduction of economical methods.

HANDLING LESS THAN CARLOAD SHIPMENTS THROUGH THE FREIGHT HOUSE

IN a recent issue of the *Railway Age Gazette* a description was published of an investigation of freight house conditions in Boston. Other cities have encountered many problems pertaining to the handling of merchandise shipments through the local freight houses, and our attention has been called to a method of improving conditions in this respect which has proved successful in St. Louis.

A few years ago complaints from shippers concerning the handling of less-than-carload shipments at the local freight houses became so numerous that the Traffic Bureau of the Business Men's League of St. Louis made an investigation. It was found that it was the custom of all the carriers to compel shippers to peddle their outbound shipments from door to door at each freight house so that the freight might be trucked across the platform as directly as possible, to the car into which it should be loaded in station order, and to wait indefinitely for a receipt. In some cases this required resetting of a wagon from eight to ten times in order to dispose of a single wagon load for a single station.

The shippers felt that this was an unreasonable burden and that it would be mutually advantageous if the carriers would provide arrangements for discharging entire wagon loads at some door designated for the purpose. A standing committee was appointed representing all of the local agents of the railways at St. Louis and East St. Louis, to work with a like committee representing the shippers in connection with the bureau.

As a result of the joint work of this joint committee there was established at all freight houses what is termed the "one-dump" system; that is, the shippers are permitted to discharge their entire wagon loads at a door designated by the freight house foreman. The freight is immediately checked and receipt given, thus avoiding delay to the drayage facilities of the shippers. Through the committee from time to time all of the various details with respect to receiving, checking, loading, issuing receipts, and other incidentals to the handling of freight shipments which might cause friction or controversies, have been thrashed out.

As an aid to the committee in determining from day to day the conditions at the freight houses, the Traffic Bureau of the Business Men's League has a station service inspector who reports daily the general conditions so that the standing committee may be called together if necessary.

It is stated that the system is now working so smoothly that the standing committee has had very little to do for the past two years; and the results obtained have been due to the practical and earnest co-operation of the shippers and carriers through representatives having an intimate knowledge of all the details and conditions. This is but another example of the advantages to be derived from such co-operation between the railways and the shippers, which is rapidly taking the place of the old condition of protracted controversy. The results obtained in the city of St. Louis may perhaps prove an object lesson to many other cities that have been struggling with the freight house problem.

DENVER & RIO GRANDE

INSTEAD of the usual rather perfunctory thanks to officers and employees with which so many annual reports close, Mr. Bush concludes his letter of transmittal accompanying the Denver & Rio Grande annual report for the fiscal year ended June 30, 1914, by saying: "The company and its officers have undertaken to warrant the confidence of the peoples served so that the relations between all are established on sound, substantial principles." This was not always the attitude of the management of the Denver & Rio Grande, and it is, therefore, all the more noteworthy. The figures in an annual report cannot, of course, directly reflect progress in the undertaking "to warrant the confidence of the peoples served"; nevertheless, it has been the pretty general rule, especially in recent years, that good operating results have gone hand in hand with better service. There are plenty of theoretical exceptions to this, but in practice the economically managed road gives good service and any number of examples could be cited—the Delaware, Lackawanna & Western, the Chicago & North Western, the Buffalo, Rochester & Pittsburgh, the Union Pacific, the Burlington, etc.

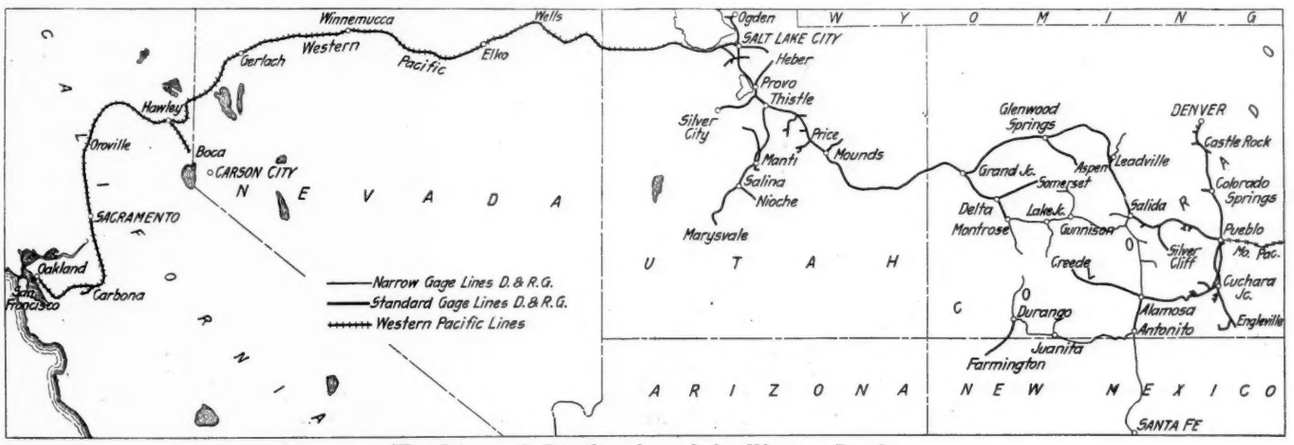
In 1914 the Denver & Rio Grande's earnings amounted to $23,167,000, or 5.26 per cent less than in 1913. This was the result of a reduction of 4.80 per cent in passengers carried one mile and 6.23 per cent in tons carried one mile. The falling off in business, however, was accompanied by a decrease of 8.19 per cent in passenger-train miles and 17.04 per cent in freight-train miles. Notwithstanding, therefore, unusually heavy snow, followed later in the year by unusually heavy rains, transportation expenses amounted to $7,249,000, a decrease of $489,000, or 6.32 per cent, from the corresponding expenses of 1913. The saving in transportation expenses was in greater part directly due to a saving in train mileage. The saving in train mileage, disproportionately larger than the falling off in business, was the result of a larger revenue trainload—337 tons in 1914 as against 305 tons in 1913, a gain of 10.57 per cent—and 66 passengers on an average per train as against 64 in 1913, a gain of 2.50 per cent. In addition to the larger revenue trainload there was also more company freight—52 tons as against 40 tons—carried per train, so that the total trainload was 390 tons in 1914 as against 345 tons in 1913. All of the gain in trainload was made in adding cars, the carloading per loaded car being about the same in each year—23 tons. The average number of loaded cars per train was 17, as against 15, and the empty cars 7.6 as against 6.7. The percentage of loaded car-miles to total car-miles was 66.23 in 1914 and 66.35 in 1913. In view of all the conditions this is certainly a very creditable record.

The Denver & Rio Grande operates a total mileage of 2,585 miles, of which approximately 1,795 miles is standard gage and 769 miles narrow gage. There is in all about 197 miles of second-track and 700 miles of sidings and spur tracks.

The Denver & Rio Grande forms a connecting link in the Gould transcontinental system between the Missouri Pacific, with its western terminus at Pueblo, Col., and the Western Pacific, with its eastern terminus at Salt Lake City, Utah. The part of this route formed by the Denver & Rio Grande and Western Pacific is, however, a very mountainous one. On competitive business, theerfore, both passenger and freight, the Denver & Rio Grande is at a disadvantage when compared with the Union Pacific, Northern Pacific and Great Northern on the north, and with the Southern Pacific on the south, although, of course, the Grand gorge scenery is a real asset insofar as passenger business is concerned. On the other hand, the Denver & Rio Grande taps resources of the wonderfully rich state of Colorado, which no other railroad has access to. The local business in precious ores, fruit and vegetables is expensive to handle, but is the real backbone of the Rio Grande's earnings.

Of the total 11,230,397 tons of freight carried in 1914, 38 per cent was precious ore and 29 per cent bituminous coal, 5 per cent was products of agriculture and fruit, and 6 per cent manufactures. Because of the nature of the traffic the ton-mile rate on the Denver & Rio Grande is good—1.201 cents in 1914. The passenger rate, however, is low—2.04 cents in 1914.

The Denver & Rio Grande used its credit in helping to build the Western Pacific. The Western Pacific was opened in July, 1911. It was built avowedly, because in competition with the Union Pacific the Denver & Rio Grande was at a disadvantage for California business. This ambition to share in through transcontinental business was the hope of a traffic man rather than an operating man. It is one thing to be able to solicit through business and quite another to be able to handle it economically and expeditiously. With its grades and location the Denver & Rio Grande is at a disadvantage wholly regardless of its relations with roads to the east and west of it. The following table shows the percentage of each class of traffic in 1911 to 1914:



The Denver & Rio Grande and the Western Pacific

	1914	1913	1912	1911
Products of agriculture	5.3	5.4	4.9	3.9
Products of animals	1.6	1.4	1.2	1.1
Products of mines	80.9	79.9	82.6	84.2
Products of lumber	2.2	2.8	2.3	3.9
Manufactures	5.9	6.3	5.5	5.5
Merchandise	1.7	1.7	1.6	1.5
Miscellaneous	2.4	2.5	1.9	1.6

Neither the percentages of the various classes of traffic nor the actual tonnage figures would indicate that the Western Pacific had brought a great deal of through business to the Denver & Rio Grande. The tonnage of fruit shows a steady increase from 106,000 tons in 1911 to 146,000 in 1913, with a slight falling off in 1914; but no great part of this fruit tonnage is furnished by California, most of it being Colorado fruit shipped east, and the growth in traffic is due to the growth in production in the state of Colorado, the falling off in 1913, when there was a bad fruit year in Colorado, bearing out this assumption.

This brings us back to President Bush's statement about the establishment of confidence between the people served and the railroad. The Denver & Rio Grande is essentially a local and originating and distributing road. It originates traffic for the Missouri Pacific and distributes traffic delivered to it by the Missouri Pacific; but its success depends very largely on the

prosperity of Colorado, and to a less extent on that of Utah. The recognition of this fact by the present management of the road is a significant and hopeful sign.

The Denver & Rio Grande in 1914 spent $1,938,000 for additions and betterments. No bonds were sold and the funded debt was decreased by $321,000 through the redemption of a small block of first and refunding 5's and the payment of $150,000 maturing equipment trust obligations. No dividends were paid on either the preferred or common stock, so that the entire $1,056,000 surplus from income account was credited to profit and loss. The cash on hand at the end of the year amounted to $2,607,000, $258,000 more than at the beginning of the year, and the amount loaned to the Western Pacific by the Rio Grande increased from $593,000 to $2,420,000. In addition there is now $3,125,000 interest due on the Western Pacific's second mortgage bonds, all held by the Rio Grande, which is unpaid. There were no Denver & Rio Grande loans and bills payable at the end of the year, and total working liabilities amounted to but $3,677,000, $240,000 less than at the beginning of the year.

The Western Pacific earned $6,100,000 in 1914, or $74,000 less than the previous year, and had operating expenses of $4,996,000, or $517,000 more than the previous year. After the payment of taxes the company had $322,000 available for interest charges as against $1,040,000 the year before. It will be seen, therefore, that the Denver & Rio Grande had to advance the Western Pacific about $2,200,000 to pay the interest charges on the Western Pacific's $50,000,000 first mortgage 5 per cent bonds.

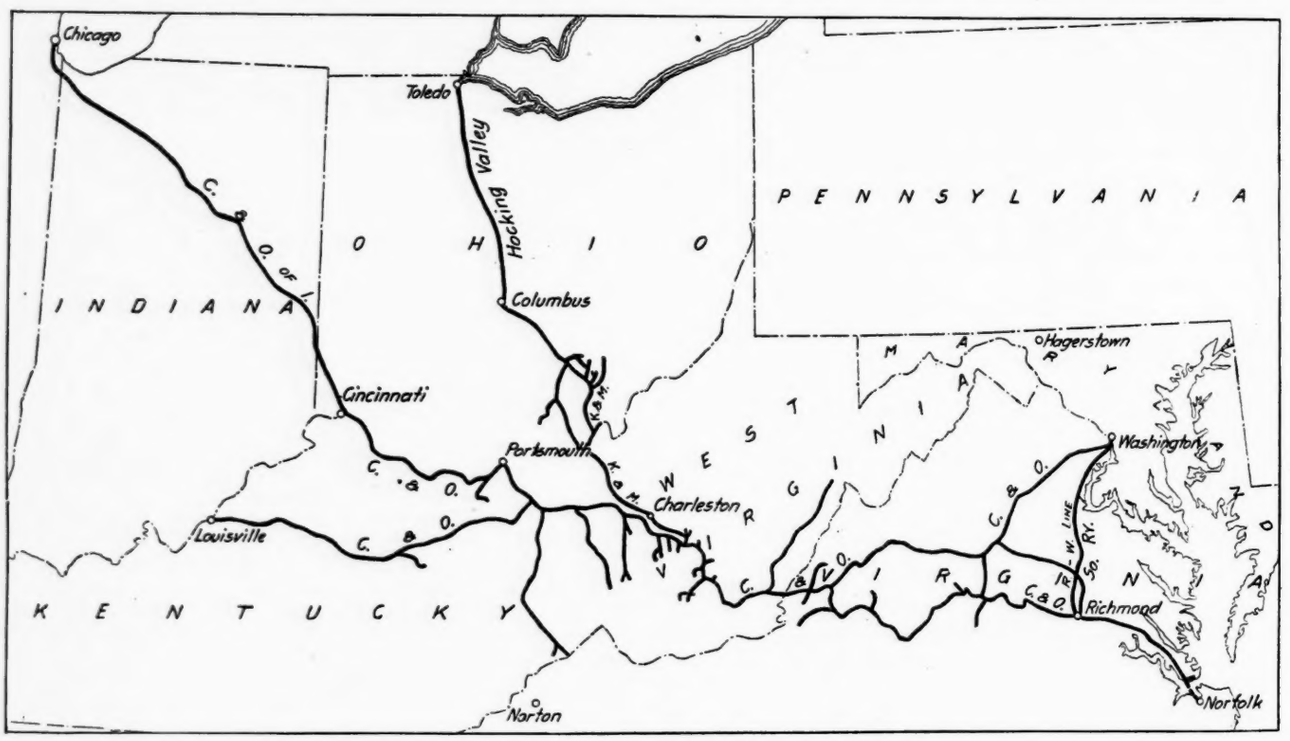
The following table shows the principal figures for operation in 1914 and 1913:

	1914	1913
Average mileage operated	2,583	2,555
Freight revenue	$17,058,080	$18,078,140
Passenger revenue	5,077,408	5,299,081
Total operating revenues	23,167,051	24,452,965
Maint. of way and structures	3,393,968	3,545,938
Maint. of equipment	4,245,325	4,538,251
Traffic expenses	497,431	546,432
Transportation expenses	7,249,240	7,738,496
General expenses	632,231	678,055
Total operating expenses	16,018,196	17,047,172
Taxes	1,009,144	948,739
Operating income	6,123,564	6,450,560
Gross income	7,386,498	7,698,498
Net income	1,400,375	2,094,180
Appropriations to sinking funds	263,889	247,808
Appropriations for additions and betterments	80,928	389,000
Surplus	1,055,559	1,457,372

CHESAPEAKE & OHIO

WHEN control of the Chesapeake & Ohio was bought in 1909 it was figured that the property could earn on an average of about 10 per cent on its stock. Since 1910 unforeseeable increases in wages and taxes accumulated until they now aggregate about 4½ per cent a year on the stock. If, therefore, the estimate of 1909 of the investors in Chesapeake & Ohio stock was correct, the company would have earned approximately 5½ per cent on its stock in the fiscal year ended June 30, 1914, and the fact that it actually earned but 4.73 per cent would indicate either that the original 1909 estimate was a little too high or that there were temporary causes adversely affecting net income which may under ordinary circumstances be expected to be no longer effective.

Operating revenue was greater in 1910 than in 1905 by 50 per cent, or an average increase of a little less than 10 per cent per year. From 1911 to 1914 the average yearly increase in operating revenues was only between 3 and 4 per cent. Total operating revenues in 1914 amounted to $36,690,000, an increase of 4.57 per cent over 1913. The question then is as to whether the 4½ per cent increase in gross in 1914, which is slightly larger than the average since 1911, but only half of the average from 1905 to 1910, may be considered normal in estimating future earning power.*



The Chesapeake & Ohio System and the Kanawha & Michigan

During the years 1911 to 1914, because of particular problems and circumstances, the Chesapeake & Ohio has not shared to the extent that it ought in the increase in general business, especially in coal business. It did not share in the increase in tidewater coal business, which has apparently been so profitable to the Norfolk & Western, because the Virginian's competition cut into this business and because both the Virginian and the Norfolk & Western had far better facilities for dumping coal into vessels at tidewater than had the Chesapeake & Ohio; and, furthermore, the Chesapeake & Ohio could not keep its coal cars on its own lines at the very times that it needed them most when there was the largest amount of coal pressing for shipment to tidewater. The Chesapeake & Ohio could not share in the full increase in the lake coal movement partly because of

*A break is made in this comparison between 1910 and 1911 because 1911 is the first year in which the earnings and expenses of the Chicago line are included. By comparing 1910 with 1905 and 1914 with 1911, like is compared with like.

congestion on western connections, especially the Cincinnati, Hamilton & Dayton at Cincinnati; partly because its own Chicago line, which was bought to develop general business rather than coal business, probably was not in physical shape to economically handle much coal business, and partly because of the uneconomical way in which the Chesapeake & Ohio had to route coal to Toledo. Shortage of cars also prevented the company from fully sharing in the increase in coal business in its territory. With these disabilities removed it appears quite safe to say that 4 per cent increase in operating revenues is very materially less than a normal increase.

The company has been building and put in operation on June 1, 1914, a new all-steel dumping pier at Newport News. This pier cost about $1,630,000, and has a capacity of 5,000 tons per hour. The completion of this pier not only removes the disability under which the Chesapeake & Ohio had been laboring in regard to tidewater coal business, but gives it facilities that are even more modern and of greater capacity than either of its competitors. On the other end of the line a project has just been started which should give the road an economical outlet for lake coal that will both make it independent of the congestion on connections at Cincinnati and give it a far better division of the rates than it is now getting on coal which moves over the Kanawha & Michigan to the Hocking Valley. During the past two years the Chesapeake & Ohio has also added very largely to its equipment.

The new outlet to the lakes is to be furnished by a line which is being built from Portsmouth, Ohio, on the main line of the Chesapeake & Ohio, to Columbus, Ohio, on the main line of the Hocking Valley. This line is being built under the direct supervision of M. J. Caples, who built the Carolina, Clinchfield & Ohio, which argues well, therefore, for its being an economical line to operate.

Total operating expenses on the Chesapeake & Ohio in 1914 amounted to $25,654,000, an increase over 1913 of $1,202,000. This is an increase of 4.92 per cent, with an increase of 9.2 per cent in passenger mileage and 5.5 per cent in revenue ton mileage, with, however, an increase of but 0.2 per cent in passenger-train mileage and 2.3 per cent in freight-train mileage. The greater part of the increase in expenses was in transportation. These expenses in 1914 amounted to $12,168,000, an increase over 1913 of $787,000, the largest increases being $132,000 in payments for loss and damage to freight, $99,000 in fuel for road locomotives, $96,000 in station employees and $74,000 in yard conductors and brakemen. These increases are by no means necessarily permanent; in fact, with the exception of station employees, it would seem as if the company might reasonably expect to increase transportation expenses only slightly more than in proportion to the increase in revenue train-mileage.

Maintenance of way expenses amounted to $4,138,000 in 1914, a reduction of $205,000, largely because of a smaller rail renewal and smaller expenditures on track labor, tie renewals having increased, however. Maintenance of equipment cost $7,693,000, an increase of $417,000. Maintenance of equipment expenses were extraordinarily high because up till about a year ago there was so large and pressing a demand for cars, especially coal cars, and so many cars were off the line, that as soon as the demand became more normal and cars began to return from the west, an extensive repair program was entered on.

If the above conclusions are right, the Chesapeake & Ohio had a smaller gross and larger expenses in 1914, because of particular circumstances and conditions which have been or are being changed. Just how much difference this would make in the net income available for dividends, it is, of course, impossible to say. It ought to be more than one per cent on the stock. The faith of the owners in the property is shown by their willingness to postpone dividends in order that the surplus which belongs to them may be invested in betterment of the property.

Interest charges in 1914 were more by $615,000 than in 1913. Part of this increase was due to the refunding of $28,000,000 notes, of which $25,000,000 were 4½ per cent and the remainder 5 per cent, by the sale of $33,000,000 5 per cent notes and by the interest charges on equipment contracts. The interest on the new $33,000,000 notes began in March, whereas the interest on the notes retired did not cease until June 1. There was, therefore, an overlapping of interest charges, so that in 1915 interest charges ought not to be any higher, if as high, as in 1914, despite the fact that interest for the full year will, of course, be called for on the new notes.

There has been a great deal of money spent on expansion and betterment of the Chesapeake & Ohio since 1909. On the other hand, the financing of this expansion and betterments, that is, the issue and sale of securities against this new investment in property, has been notably conservative. In the five years since 1909 the property has been extended through the purchase of stocks of other companies, principally the Chesapeake & Ohio of Indiana (the Chicago line), the Hocking Valley and a part interest in the Kanawha & Michigan, at a cost of $21,506,000, to which should be added the cost of the bonds of the Chicago line and of the Elkhorn & Beaver Valley, $6,381,000, and other properties bought outright, $4,193,000. In addition, during these five years $15,692,000 has been spent for additions and betterments, including 173 miles of second-track, and $16,875,000 net for new equipment. This is a total of $64,646,000. Against this expenditure there has been issued net, including the new $33,000,000 5 per cent collateral notes, but $54,888,000.

The company had falling due on June 1, 1914, $28,500,000 notes. In March an arrangement was made for refunding these notes through the sale of $33,000,000 5-year 5 per cent notes. The company pledged itself to spend out of net income $17,000,000 during these five years for additions and betterments, this expenditure to be made prior to any dividend payments. In other words, the stockholders agreed to, if necessary, sacrifice a part or all of their 4 per cent dividend (the rate paid in 1914) in order to make a further investment in the property as an added margin of safety behind the first lien and improvement mortgage bonds which are the collateral security for the $33,000,000 notes.

At the time of the purchase of the majority stock of the Hocking Valley the Chesapeake & Ohio also bought a half interest in the majority stock of the Kanawha & Michigan. The Lake Shore & Michigan Southern owned the other half interest. The cost to the Chesapeake & Ohio of its Kanawha & Michigan stock was $2,901,000. This purchase was the subject of litigation, and in March, 1914, the United States district court held the ownership of the Kanawha & Michigan control by the Lake Shore and the Chesapeake & Ohio as a violation of the Sherman anti-trust law. Valuable as is the Kanawha & Michigan, control of the half interest in it, except as an investment, was not particularly advantageous to the Chesapeake & Ohio, and rather than fight the suit through to the Supreme Court, the company agreed to sell its Kanawha & Michigan stock to the Toledo & Ohio Central, which is controlled by the Lake Shore & Michigan Southern. During the time that the Chesapeake & Ohio held this stock it had appreciated materially in value and the company sold it for $4,029,000, realizing a profit of $1,100,000. This stock was pledged under the first lien and improvement mortgage, and the proceeds of the sale will, therefore, be available for additions and betterments or other capital purposes permitted by the mortgage securing these bonds. With the building of the connection between the Chesapeake & Ohio and the Hocking Valley the necessity for a voice in the management of the Kanawha & Michigan will have entirely disappeared.

At the beginning of 1914 the company had on hand $2,928,000 cash, with total working assets, including this cash, of $6,468,000. There were $95,000 loans and bills payable, and a total, including the bills payable, of $5,228,000 working liabilities. On June 30, 1914, the company had $1,793,000 cash, total working assets being $5,979,000, the same $95,000 loans and bills payable, with total working liabilities of $5,774,000. As of June 30, 1914, however, the sale of the Kanawha & Michigan

stock had not been consummated. Payment for this stock is to be made $2,000,000 in cash and the remainder by note maturing September 1, 1915.

The table shows the principal figures for 1914 and 1913:

	1914	1913
Average mileage operated	2,346	2,319
Freight revenue	$28,866,516	$27,549,696
Passenger revenue	6,098,059	5,858,138
Total operating revenues	36,690,021	35,085,278
Maint. of way and structures	4,138,092	4,342,745
Maint. of equipment	7,692,748	7,275,439
Traffic expenses	669,283	669,016
Transportation expenses	12,167,906	11,380,998
General	985,909	783,362
Total operating expenses	25,653,937	24,451,560
Taxes	1,330,935	1,375,863
Operating income	9,705,149	9,257,855
Gross income	11,859,681	11,483,392
Net income	2,971,816	3,298,503
Dividends	2,511,264	3,139,080
Surplus	460,552	159,423

ATCHISON, TOPEKA & SANTA FE

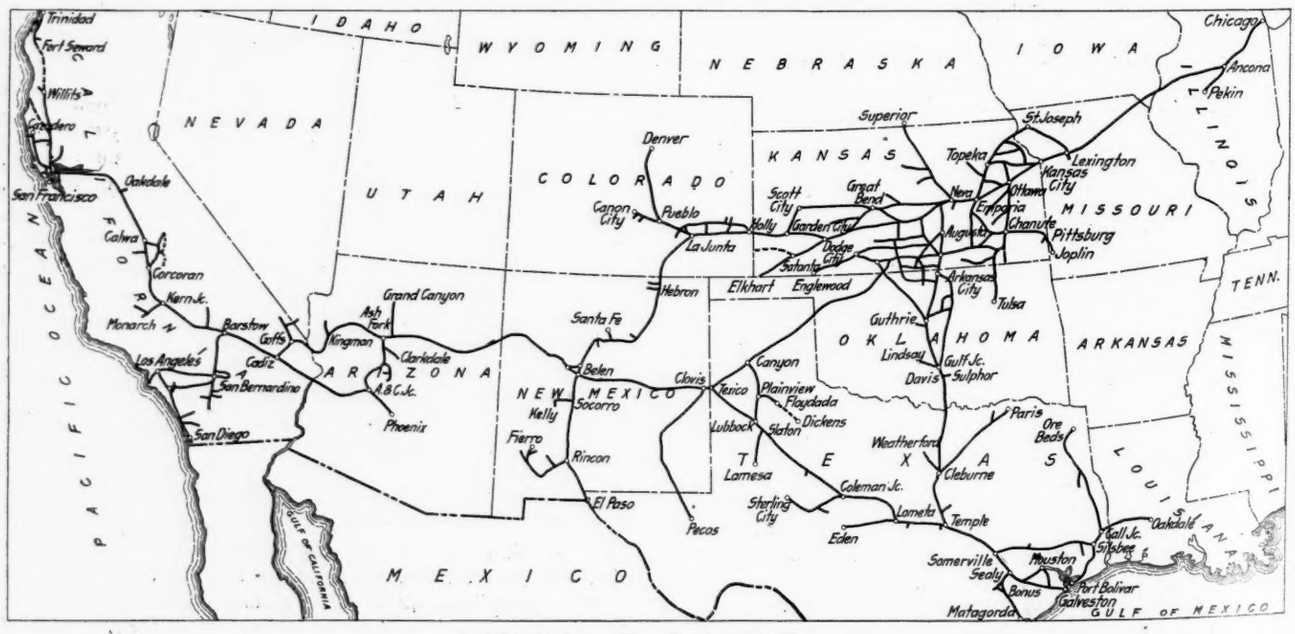
THE Atchison, Topeka & Santa Fe has been one of the few railroad companies which have continued expenditures for extensions in the past few years as well as expenditures for additions and betterments. This was so because the Santa Fe had very extensive work in hand when the present period of depression in the railroad business began and it was of utmost importance that this work should be carried to completion so that a return might be had on investment already made. Even in the fiscal year ended June 30, 1914, $2,673,000 was spent for construction and acquisition of new mileage, in addition to $13,284,000 spent for additions and betterments and additional equipment. The net increase in the property account after making adjustments for reduction in book values was $11,165,000. In President Ripley's opinion it has now become prohibitively difficult to borrow new capital for a railroad company such as the Atchison, Topeka & Santa Fe. President Ripley says in his annual report to stockholders: "Under these conditions it is the intention of your directors to make no additions or betterments, however desirable, which cannot be paid for out of current earnings, and to continue the policy of incurring no floating debt." In 1914 the surplus current earnings available for expenditure on additions and betterments or extensions, after the payment of interest charges and dividends, was $2,719,000. It will be seen, therefore, how radical and drastic would be the change in the course of the Santa Fe if increased earnings do not make available a larger sum than $2,700,000 for additions and betterments, or if there is no change for the better in money conditions which will warrant a change of policy on the part of the management.

The Atchison, Topeka & Santa Fe operates 10,909 miles of road and the increase in mileage from 1913 to 1914 was 190 miles. During the years from 1897 to 1914 the average earnings per mile of road operated have grown from $4,752 in 1897 to $10,186 in 1914.

If one will stop to think what this development of Santa Fe has meant to the territory which it serves it will be easy to see how vastly important it is to the future development of this country that a continuation of development of this and other great railroad properties may be made possible. As President Ripley says, the development of the Atchison, Topeka & Santa Fe business and of its efficiency has been due principally to the very large expenditures (over $298,000,000) which have been made in the extension and improvement of the property since January 1, 1896.

The 1914 annual report of the Santa Fe contains a very striking table showing the property investment, income applicable to bond interest, dividends, improvement of property and strengthening of credit, and the per cent of this income to property investment. In 1897 the total property investment, excluding working capital, amounted to $387,957,000, and the income for that year amounted to 1.57 per cent on this investment. By 1907 property investment had increased to $519,004,000 and the income to an amount equal to 6.31 per cent on this investment. In 1909 total property investment was $548,251,000 and income $33,535,000, or 6.11 per cent. In 1914 property investment was $651,429,000, an increase of more than $100,000,000 since 1909, while income was but $33,070,000, or slightly less than in 1909 and represented but 5.08 per cent on the investment.

The fiscal year 1914 was not a prosperous one for the Santa Fe. Total operating revenues amounted to $111,110,000, a decrease of $5,786,000 from the revenues of 1913. Operating expenses amounted to $73,469,000, a decrease of $4,173,000. By far the greater part of the decrease in revenues was caused by a falling off in freight business. The total tonnage carried in 1914 was 25,034,000 tons, or only a comparatively small number of tons less than in 1913 (25,062,000 tons). On the other hand, the average length of haul was but 292 miles in 1914 as against 311 miles in 1913. The tonnage of products of mines in 1914 was 10,244,000 tons; in 1913, 9,334,000 tons. This tonnage is comparatively short-haul business. The tonnage of products of agriculture amounted to 5,000,000



The Atchison, Topeka & Santa Fe

tons in 1914, or 19.97 per cent of the total tonnage, and in 1913 to 5,237,000 tons, or 20.90 per cent of the total tonnage. Lumber and forest products furnished 2,164,000 tons in 1914, or 8.64 per cent of the total tonnage, and in 1913, 2,627,000 tons, or 10.48 per cent of the total tonnage. The proportionate amount of l. c. l. tonnage of merchandise on the Santa Fe is large. In 1914 1,499,000 tons, or 5.99 per cent of the otal tonnage, was merchandise; in 1913, 1,563,000 tons, or .24 per cent of the total tonnage.

It was impossible to reduce operating expenses to an amount that would offset the decrease in business. The reduction in operating expenses of $4,173,000 was effected through a smaller expenditure for maintenance of way by $2,746,000, and a reduction in transportation expenses of $1,317,000. Detailed expense accounts show that the principal reductions in maintenance of way were in the amount spent for track labor, for bridges, trestles and culverts, and for buildings, for fixtures and grounds.

The economies in transportation expenses were due, apparently, to a reduction in freight-train mileage, which reduction, however, was not quite commensurate with the falling off in ton mileage. The decrease in ton mileage was 8.07 per cent; the decrease in freight-train mileage, 6.98 per cent. The average trainload in 1914 was 420 tons and in 1913, 425 tons; the average carload per loaded car, 18.75 tons in 1914 and 19.14 tons in 1913.

No additional securities were sold by the Atchison, Topeka & Santa Fe in 1914 and interest charges were reduced by $939,000 through the conversion of $4,975,000 4 per cent bonds into stock. At the beginning of 1914 there was $30,096,000 cash on hand, with, of course, no loans or bills payable and total working liabilities of $13,024,000. At the end of the year there was $20,063,000 cash, with total working liabilities of $10,413,000. If the income statement of the Santa Fe were as satisfactory as its balance sheet there would be no need for President Ripley's warning to stockholders. The Santa Fe is in a sounder position, insofar as the relation of the amount of its debt to its stock is concerned, than most other roads. At the end of 1914 there was $309,985,000 stock outstanding and $313,194,000 bonds.

The following paragraph in President Ripley's letter of transmittal of the annual report is worthy of most careful consideration:

"Your directors feel that heavy responsibilities devolve on them in the present state of governmental activities directed at the railroad industries. It has been found almost impossible to make even an approximate estimate of the cost of 'regulation' which has been imposed on us by the state and national governments. Without criticizing the policy of proper supervision, it is fair to say that many of the laws are not only expensive, but in the opinion of your officers unnecessary and superfluous. Constant whittling of rates, plus constant legislation which adds to your expenses without adding to revenue, have had their inevitable effect. Your own company has been less crippled by these conditions than some of those less fortunate, but by reference to page 14 [income account] it will be seen on how narrow a margin we have been working. There are some evidences of a disposition on the part of those in authority to realize that great injustice has been done in the guise of regulation and that it is time to call a halt, but the relief which the railroads need cannot come until this disposition shall be transmuted from mere expressions of friendliness into positive remedial measures. General words of sympathy will accomplish nothing if governmental agencies continue in each specific instance to impose additional burdens or to find excuses for not granting specific relief. Hence your directors deem it their duty again to warn stockholders that their interests are more endangered by the various governmental regulations than from any other source."

The following table shows the principal figures for operation in 1914 as compared with 1913:

	1914	1913
Average mileage operated	10,909	10,751
Freight revenue	$73,638,388	$78,190,923
Passenger revenue	28,497,233	29,425,922
Total operating revenues	111,109,770	116,896,252
Maint. of way and structures	15,308,780	18,054,413
Maint. of equipment	19,100,725	19,415,225
Traffic expenses	2,521,453	2,455,785
Transportation expenses	33,818,433	35,135,649
General expenses	2,719,943	2,581,463
Total operating expenses	73,469,334	77,642,535
Taxes	5,525,585	4,662,152
Operating income	32,114,851	34,591,565
Gross income	34,289,204	37,107,189
Net income	20,183,965	22,153,734
Dividends	17,400,440	16,107,470
Appropriations for additions and betterments and sinking fund	2,783,525	6,046,264

HOCKING VALLEY

THE majority stock of the Hocking Valley is owned by the Chesapeake & Ohio, and besides the great importance of the Hocking Valley as an outlet for lake coal for the Chesapeake & Ohio, the investment as an investment is a good one. This fact was as clearly demonstrated in 1914 as in previous years when net earnings of the Hocking Valley were very much larger. In 1914 there was a coal miners' strike in the Hocking district which resulted in the almost entire suspension of coal mining in April, May and June. Since the Hocking depends on coal for about 70 per cent of its tonnage, this caused a material reduction in operating revenues. Total operating revenues in 1914 amounted to $7,021,000, which is less by $796,000, or 10 per cent, than the revenues in 1913. No corresponding increase was made in operating expenses, which in 1914 amounted to $4,804,000, or but $180,000, or 4 per cent, less than in 1913. Nevertheless, after the payment of expenses, interest charges and rentals, there was a net income available for dividends of $956,000, the regular 8 per cent dividends calling for $880,000.

Of the total 10,487,000 tons of coal carried in 1914, 40 per cent originated on the Hocking Valley and 60 per cent was received from connections. Of the total tonnage 78 per cent was products of mines and 11 per cent manufactures. The average haul was 125 miles in 1914 as against 130 miles in 1913. There was, therefore, a decrease in the revenue ton mileage of 9.5 per cent, the total in 1914 being 1,315,000,000. With this falling off of 9.5 per cent in ton mileage there was a decrease of 10.6 per cent in freight-train mileage, the total freight-train mileage in 1914 being 1,316,000, and a reduction in locomotive mileage of 13.3 per cent, the total locomotive mileage in 1914 being 1,513,000. The average revenue trainload in 1914 was exactly 1,000 tons, and including company freight, 1,036 tons. This is an increase of 13 tons, or 1.3 per cent, over the trainload in 1913. The showing per locomotive mile was even better, 901 tons in 1914 as against 862 tons in 1913, an increase of 4.5 per cent. The greater part of the gain was made in length of train, carloading per loaded car being 36.9 tons in 1914 and 36.3 tons in the year 1913.

The Hocking Valley had on hand at the end of the year $973,000 cash, with a total of $1,844,000 working assets, exclusive of materials and supplies. There were loans and bills payable amounting to $1,400,000, which are included in total working liabilities of $3,057,000. In this connection it should be pointed out that the company has just finished building a new dock and terminal at Toledo, which is described elsewhere in this issue, and which cost about $1,450,000. The new dock is across the river from the old dock which the Hocking Valley owned, and this old dock is to be sold to the Pennsylvania, and a very considerable sum will be realized from this sale.

The following table shows the principal figures for operation in 1914 as compared with 1913:

	1914	1913
Average mileage operated	352	352
Freight revenue	$5,601,382	$6,365,735
Passenger revenue	910,311	929,991
Total operating revenues	7,021,145	7,817,644
Maint. of way and structures	668,455	781,109
Maint. of equipment	1,460,653	1,595,266
Traffic expenses	107,576	106,384
Transportation expenses	2,391,640	2,332,475
General	175,422	168,609
Total operating revenues	4,803,747	4,983,843
Taxes	451,136	477,900
Operating income	1,766,262	2,355,901
Gross income	2,215,182	3,128,379
Net income	955,741	1,916,403
Dividends	879,960	1,264,943
Surplus	75,781	651,461

INVESTMENT BANKERS' ASSOCIATION TO TAKE PART IN RATE CASE

In a letter addressed to the members of the Investment Bankers' Association of America George B. Caldwell, president of the association and chairman of the special railroad bond committee, urges an expression of opinion to be submitted by the bond committee to the Interstate Commerce Commission. Mr. Caldwell's letter is as follows:

"President Wilson, in a letter recently published, has called attention to the fact that it is of paramount importance in the present crisis to maintain the credit of the railroad industry in the United States.

"The clientele of the members of the Investment Bankers' Association embraces almost the entire investing public of the country. A very large proportion of this clientele owns railroad securities. It is therefore of particular importance to the membership of the association that the value of railroad securities should remain as far as possible unimpaired.

"For several years a situation has been developing in the United States which vitally affects every owner of a railroad bond or share. We refer to the steadily decreasing margin of net earnings of the railroads, which has already resulted in placing corporations with over $500,000,000 of outstanding securities in the hands of receivers.

"For the purpose of placing before the proper tribunal the broad facts as they have developed, and are developing, your committee has asked that you write them a letter which may be considered a composite representation of the opinions of your own clients to whom you have in times past sold securities (especially railroad securities) and which will state their impressions as to the safety of their investments—say 10 years ago—and at the present time. If such statements show an increasing lack of confidence in the intrinsic safety of these securities, has this lack of confidence been brought about through the various increases in labor cost enforced by arbitrations sanctioned by the government through the reduction in rates enforced by state legislatures and commissions acting independently and by the Interstate Commerce Commission? Are these the principal causes? If not, what others are stated?

"Your committee believes that statements of this character, representing the opinion of hundreds of thousands of individuals in the country who have in times past furnished money for extensions and improvements of the roads and from whom the money must come to provide for future extensions and improvements, will be of great value in considering the merits of the situation.

"The following questions are submitted with a view of outlining some phases of the situation which the committee believes should be covered:

"1. During the last 10 years have you noticed any change in the requirements of your clients in the matter of preferences for municipal, industrial or public utility bonds or stocks where previously they have purchased steam railroad bonds? Give their reasons.

"2. Has there been a growing reluctance on the part of your clients to the purchase of the newer, and therefore junior, securities of steam railroads and a growing preference for underlying issues? Give their reasons.

"3. What expressions of opinion have you had from your clients in regard to the necessity of an increase in the rates of well-managed, conservatively capitalized railroads, as being necessary for the protection of their investments? Give their reasons.

"4. Has there been, to any great extent, a disposition to exchange steam railroad securities for other classes of corporate issues, for any other reason than possibly a larger return on the investment?

"5. What effect do you believe the European war will have on the attitude of your clients toward the purchase of railroad bonds?

"6. Do you anticipate that unless there is an increase of rates, or some other method devised, which will stem the tide of declining earnings of the steam railroads, it will be possible to place with your clients the large amounts of securities which must necessarily be floated to cover maturing obligations, amounting to over $500,000,000 prior to January 1, 1916, and should be floated to provide added facilities for the increased business which will be necessary if this country continues to grow in wealth and population?

"The Investment Bankers' Association of America has been accorded a hearing before the Interstate Commerce Commission at Washington, October 19, 1914.

"The demand for quick action is urgent and your answer, to be of value, must be submitted promptly."

The Special Railroad Committee representing the association is as follows: George B. Caldwell, president Investment Bankers' Association, chairman; John E. Blunt, Jr., Merchants' Loan & Trust Company, Chicago; Frederick Strauss, J. & W. Seligman & Co., New York; Moritz Rosenthal, Ladenburg, Thalmann & Co., New York; S. L. Fuller, Kissel, Kinnicutt & Co., New York; A. G. Hoyt, N. W. Halsey & Co., New York; Lawrence Chamberlain, Kountze Brothers, New York; Warren S. Hayden, Hayden, Miller & Co., Cleveland; Stedman Buttrick, Estabrook & Co., Boston; R. B. Young, E. H. Rollins & Sons, Boston; Howard Graham, Graham & Co., Philadelphia; R. Lancaster, Williams, Middendorf, Williams & Co., Baltimore; J. R. Edwards, Fifth-Third National Bank, Cincinnati; W. R. Compton, Wm. R. Compton Company, St. Louis; R. T. Field, Field, Richards & Co., Cincinnati; B. B. Veech, United States Trust Company, Louisville; Lynn H. Dinkins, Interstate Trust & Banking Company, New Orleans; W. G. Lackey, Mississippi Valley Trust Company, St. Louis; J. Herndon Smith, Smith, Moore & Co., St. Louis; John A. Prescott, John A. Prescott & Co., Kansas City; Gardner P. Stickney, Wisconsin Trust Company, Milwaukee; Eugene M. Stevens, Stevens, Chapman & Co., Minneapolis.

AN ENGLISH RAILWAY'S BATTALION.—To meet the case of men who would prefer to enlist among those whom they know, the directors of the North-Eastern Railway of England have asked Lord Kitchener's authority to enroll a North-Eastern Railway battalion for his new army. One thousand one hundred men are required, and a sufficient number are willing to join. Already over 4,000 of the company's employees from all departments have enlisted as Regulars and Territorials. The directors have undertaken to make adequate provision for dependents of men who enlist, to keep their positions open, and to make the arrangements for equipping and clothing the battalion

BRAKE LEVERS ON ENGLISH RAILWAY CARS.—The English Board of Trade by authority of the act of 1901 ordered on November 7, 1911, that a brake lever be provided on each side of all freight cars, and established time limits varying with the number of cars owned. For those companies or persons owning under 3,000 cars ten years was given; for those with over 3,000 cars and under 20,000, 15 years, and for those over 20,000 cars the limit was 20 years. It will therefore be seen that it is possible that not until the end of the year 1931 will every car be so fitted. The companies to whom the twenty years' limit applies are the Caledonian, Great Central, Great Eastern, Great Northern, Great Western, Lancashire and Yorkshire, London and North-Western, Midland, North British and North-Eastern. The railway companies are, however, making good progress with their equipment, and it is most unlikely that they will take advantage of their powers. It is, generally, the private owner who is hindering progress, and he has until the end of the year 1921—seven years hence—to get his work finished.

Our Trade Opportunities in South America

Extent of Openings There for American Goods, Especially Railway Supplies and How Markets May be Gained

By F. Lavis
Consulting Engineer*

During the past few years there has been an ever increasing interest by the people of the United States in the countries to the south of us, and a great deal has been said and written about South America, which term, for the purpose of the present article may generally be understood to include all the countries to the south of the United States or at any rate south of Mexico. It is probably quite generally understood that there is here a vast area, mostly as yet undeveloped, but still at the same time supporting in the aggregate large numbers of people as highly civilized as ourselves and with needs for manufactured products on the whole very large, and which they are obliged to supply by imports from foreign countries. Heretofore these needs have been met almost wholly by European manufacturers, and it has been assumed that there must have been something radically wrong with the manufacturers of the United States that they have not secured a share of this business, in some degree proportionate to the relative importance of the United States as one of the foremost manufacturing countries of the world.

Speaking generally, it may be said that there are no manufactured articles produced anywhere south of the United States. South America, therefore, needs all kinds of manufactured products of iron and steel, from locomotives and steel bridges to pins and needles; cement for masonry, coal, structural timber, all kinds of wearing apparel, etc., etc.; in short, all kinds of manufactured articles. The classes of goods we have been able to supply so far, in spite of the many disadvantages under which we have labored, as compared with European manufacturers, are principally rolled steel products, such as rails, structural steel for buildings, bridges, etc., which, in spite of our high labor costs, are sold in competition with European manufacturers largely, owing to the aggressive policy of the United States Steel Products Company, and the specialties, such as agricultural machinery, sewing machines, typewriters, phonographs and articles of a similar nature, which the native inventive genius of the American has produced, which are necessary to modern methods of working and doing business, and which could not be obtained elsewhere. All other classes of manufactured products have been most generally bought in Europe.

South America has to offer in exchange the products of the soil, agricultural, pastoral and mineral, the latter, however, not including coal or iron. It will be seen, therefore, that what they have to offer in trade is mostly the things we ourselves have in abundance, but which are required in Europe, especially in England, France, Germany, Belgium, Holland, etc., all of which are importers of food stuffs and have a large and continuous excess of manufactured products to offer in exchange, and for which they have for many years had to find markets outside of their own countries. It may be noted that owing to the almost entire absence of coal and iron, at any rate in sufficiently close relation and proper quality to build up a successful manufacturing industry of steel products, it is entirely probable that South America will always continue to be a market for steel products.

NEED FOR STUDY OF SOUTH AMERICAN CONDITIONS

Many reasons have been advanced to account for the fact that the United States has failed to obtain any large amount of the business of South America. These are usually, that American salesmen are incompetent, that they do not speak the language (all Spanish, except in Brazil, where Portuguese is spoken), that catalogs and circulars are printed in English or translated into poor Spanish, that the needs of the people are not studied, that we will not or cannot adopt the metric dimensions, which are almost universally used throughout South America, that goods are not properly packed to withstand the rough handling of ocean transport and frequent transshipment, or in small packages for pack trains, that we have no banking facilities for exchange except through London, that we have no ships of our own and have to depend on foreign bottoms, and so on.

Now, it is true that all these things and many other minor details have been neglected either wholly or in part, that they must be attended to, and that the lack of attention will prevent the development of business, but all these things have been overcome either wholly or in part by at least some American manufacturers, and on the whole they are really unimportant and may in a sense be said to be almost trivial, compared to the real underlying causes which have compelled the Latin Americans to do their trading in Europe rather than with us. In saying this, the point should be emphasized that these matters are only unimportant *by comparison*. They must on no account be overlooked or neglected, nor must we think that we can force the Latin Americans to do business our way, simply because it is our way, or to buy what we offer, whether it is what they want or not. Our manufacturers must study the needs of the countries and the people, they must employ competent salesmen if they want to do business at all, and deliver the goods in the shape in which they can be handled and in the kind of packages which are required. Perhaps many of these things apply more particularly to ordinary merchandise for what may be called household consumption, than to railway supplies, the matter which the editor has especially asked me to refer to, but the general situation is much the same for any lines of manufactured articles, and of course, in the small space of a single article little more than generalities can be attempted.

American manufacturers, except in the special lines previously referred to, have had no occasion to really attempt to consistently develop foreign markets for their products. When times have been good, as they usually have been with only comparatively infrequent intervals until the last few years, there has been a market here at home for all they could produce. We have been busy developing our own country, we have been opening up new areas and our problem has been, not to find markets for our goods in order to keep a dense population busy and earning, but to find sufficient laborers to do our work. We have had a surplus of food products, and these we have been able to export to pay our debts abroad.

There is no question, however, that we are now about at the turning point. We are finding it necessary to import such food products as corn (maize) and beef—very little, it is true, but little as it is, a beginning, and one which unless we materially change our farming methods, is bound to grow. We have a larger and ever increasing proportion of our population employed in factories and rolling mills and our manufacturers have expanded their plants to such an extent that, with only the requirements of our own domestic needs to supply, they are finding it increasingly difficult to keep them running at full time, and must necessarily look for other markets. The proportion of consumers of food products to producers is, therefore, becoming all the time relatively greater, we are consuming more and more of our own food products, we shall export less and we shall import more; this must, therefore, be offset by the sale of our manufactured products in foreign countries, and the most logical market is naturally the nearest, namely, that of our neighbors in South America. That this expansion of our foreign

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trade is bound to come in the not far distant future, and that we must develop it in South America, is as sure as is the fact that we must continue to progress. But that the present European war is going to help in this matter, is extremely doubtful, and to the writer it seems much more likely that it will tend at least temporarily to retard it rather than help.

WHY OUR SOUTH AMERICAN TRADE IS SMALL

The principal reasons why the manufacturers of the United States have not done more business with South America are:

Because the development and exploitation of the resources of these countries have been carried out almost entirely by European capital.

Because of the extensive system of credits granted by Europeans and the co-operation of the bankers with the merchants.

Because of the higher cost of production in the United States.

Because of the lack of incentive heretofore for American merchants to continuously seek foreign markets—and further—

Because of the direct shipping lines, banking connections, and facilities of intercourse both for passengers and mail.

South America has been and for quite a long time will continue to be almost entirely dependent on foreign capital for the exploitation and development of its resources, and not only this, but it has been necessary to employ foreigners, i. e., Europeans and some Americans to supervise this development, that is to say, as builders and managers of its railways, mines and other commercial enterprises. The capital has been supplied by European bankers, they naturally have a great deal to say as to the selection of both the European and resident managers of the enterprises thus financed, and therefore, not only exercise a strict control over the necessary supplies, but aside from this it is only natural that a British, French or a German manager of a railway, for instance, should prefer materials with which he has been accustomed to work and which he has been trained to believe are best. The railways of the Argentine, for example, the country in which the greatest railway development in South America has taken place, are controlled very largely by British interests, and it is a fact beyond dispute *that as a rule* neither the managers in the Argentine, the directors in London, nor their engineers or purchasing agents care to even hear anything about railway supplies or other materials not made in England. There are exceptions, of course, but they are only frequent enough to cause surprise when they happen. It must be remembered, also, that both the Argentine and Brazil, principally the former, have been built up very largely by the immigration of Europeans, and a large part of their people naturally lean towards and sympathize with their mother countries.

Another phase of the situation is, of course, the extensive system of credits which has been developed by European banks, working with the manufacturers, and which has been largely the cause of the great over-extension in Brazil and the Argentine which has almost brought them to bankruptcy within the last year or so. The Germans especially have been willing to sell to anyone who had any kind of reasonable security, whether convertible into cash or not, they have added anywhere from 20 per cent to 200 per cent to their bills, the notes in payment have been discounted by the banks, and the manufacturers have been free to go ahead and manufacture more goods to be sold on the same terms. It is needless to tell an American manufacturer how fruitless it would be, or at least has been, to get a New York bank to discount any kind of a note on South America, except on the personal security of the firm offering it.

The Germans particularly have also maintained at all important points in South America agents, bright young men working for what we should consider almost meager salaries, who have kept close watch on the financial situation and who have made it their business to make collections at such times as the money has been available. Without a man like that on the ground, thoroughly well posted as to what is going on, and able and ready to take advantage of any turn to get a payment on account, they would have made very few collections, and as a result they have now what must be in the aggregate a very large outstanding account. The British financing has been much more generally of enterprises managed by themselves, and therefore, their goods have been sold under credit conditions more nearly resembling the practice in England, and practically to their own representatives abroad.

Another very important consideration governing the possibility of our being able to sell to South America is, that, speaking generally, the cost of production in the United States, due principally to the very much higher wage scale, makes it difficult and in many cases almost impossible for us to compete with Europe. The writer believes he has no prejudices in regard to either political party and does not pretend to understand the intricacies of the tariff, but it does seem that we must necessarily enter the world's markets with our manufactured products and he does not see how that is going to be possible with the continued artificial maintenance of a very high wage scale as compared with that of the rest of the world.

The question of the effect of the lack of American owned ships on our trade with South America is one which it is difficult to answer. So long as there was general peace, of course, it apparently had little effect on the business and the shippers had little difficulty in finding bottoms. Now, when nearly all the available ships belong to one or other of the belligerents there is a great cry for American owned ships. So far as the writer can see, however, the effect of this on our prospects of future trade with South America cannot be very great one way or the other.

The question of the establishment of branches of American banks in South America is also on a somewhat similar basis to that of shipping. If we are to develop our trade it is undoubtedly to be desired that we should be able to do business through our own banks, but it seems no more reasonable to ask the bankers to be pioneers in the establishment of banks before there is any business for them to do than it is to ask our merchants to tie up their capital in extended credits to compete with Europeans merely as a matter of sentiment, and just so that we as a great nation may do as much business in South America as other great nations do. As a matter of fact, the two must be pushed along together, and one bank at least has already taken steps in the right direction by the establishment of branches in Buenos Aires and Rio. It has been stated within the past few days that the government is seriously considering two-cent postage and direct exchange of postal money orders. This is desirable, but almost everyone who does business would rather pay five cents and have frequent and prompt service, say two direct mails a week to each coast and by reasonably fast boats, than a cheaper rate. The postal money order feature is a desirable step in the right direction, as up to the present, if my memory serves, all this business has been done through Belgium.

THE QUESTION OF RAILWAY SUPPLIES

Turning now to the question of railway supplies, these have been very largely furnished heretofore by England, Germany, Belgium and France, probably about in the order named, and I should think with England very largely in the lead. Germany and Belgium are, of course, practically eliminated by reason of the war. Just how long they will be kept out of the markets of the world depends on the length of the war, and the decimation of the laboring classes due to death, wounds, etc. It seems probable, though, that the decline of their influence will be felt for some time to come, even if the war should stop at once. The same may probably be said of France, to some extent, though there is no embargo on French shipping.

There seems to be no reason, however, to expect that England is not, and will not continue to be, able to supply all or nearly all the demands made on her for practically all lines of manufactured products, and in view of the greatly decreased purchasing power of the South American nations, it would seem that England alone could easily supply all the demands which may be made by South America in the immediate future and for quite some time to come.

It must be borne in mind that not only is the demand for the products of South America by Europe decreased to the lowest

point and is for only the most necessary articles of food supply, but also that the ability and desire of Europe to lend money or extend credit has been practically entirely suspended for at least a year now, and of course will so continue not only until the end of the present war, but until most of its depressing effects on the general financial situation of the world have been overcome.

The purchasing power of South America has, therefore, been decreased, first by reason of the fact that it is largely indebted to Europe and there is, therefore, an actual dearth of real money; second, by the fact that its credit has been strained by over-speculation and too rapid development (too rapid only in relation to the supply of the world's capital); third, entire suspension of European ability to make loans; and fourth, decreased demand for South America's products. This latter, however, is to some extent offset so far as some sections are concerned by an increased demand for food products at higher prices, tempered by some lack of transportation facilities.

In estimating the possibility that American manufacturers may take advantage of the present war situation to introduce their goods into South America, and especially so far as regards railway supplies, the factors which seem to the writer most important are, that Great Britain will not have to materially curtail her production, that while the shipping facilities of the world are considerably decreased by the practical withdrawal of all the German boats, and the use of some commercial vessels for the purposes of war, yet with the largely decreased volume of business of all kinds throughout the world, the available shipping will probably be able to take care of it, that South Americans have been quite generally educated to and have developed the habits of trading with Europe and that so far as regards England and France they have little reason to change now, and most important of all, due to the quite universal financial depression which has existed in southern South America for the past 18 months and which has been greatly accentuated by the present war, the purchasing power of these countries is very largely decreased, or almost entirely destroyed for the moment, unless at extremely long credits.

The writer recently received a letter from a friend in Buenos Aires dated early in August, which contains the following: "All the railways in the Argentine have reduced their train services by about 50 per cent in the last few days, due to lack of traffic and shortage of coal. The Buenos Aires & Pacific has cut out thirty-two daily trains in its local service alone. The banks opened yesterday after being closed for ten days, but all managed to come out well except one which cannot pay its claims and remains shut."

FINANCIAL SITUATION OF SOUTH AMERICAN RAILWAYS

For the last financial year ending June 30, 1914, the gross receipts of the Argentine Railways were somewhere near fifteen million dollars less than for the year previous, only three lines out of fifteen showing any increase. Both the Argentine and Brazil have suffered greatly during the past year, owing to the necessary curtailment of credits by Europe, due first to the Balkan war and also to the fact that previous to that time they were greatly over-extended and there has been considerable over-speculation.

In Brazil the practical failure of the valorization scheme to sustain the price of coffee and the great drop in the price of rubber due to the great competition of plantation rubber, has accentuated the financial difficulties, while the Argentine has greatly suffered from over-speculation in lands. Credits have been strained to nearly the limit everywhere. In regard to Chili, the writer is not very well posted, but that country is at least equally a sufferer from the necessary curtailment of their credit in Europe.

Brazil has about 12,000 miles, of which about half is controlled by a company incorporated in the United States, but of which the capital has been supplied by English, French and Belgium banks. The rest of the mileage is mostly British, with quite a little owned and operated by the government.

The Argentine has some 20,000 miles of railway owned as follows:*

	Length	Capital invested
British	22,908 km.	$875,000,000
French	3,770 km.	112,000,000
Argentine	269 km.	9,000,000
Argentine government	5,907 km.	122,000,000
	32,854 km.	$1,118,000,000

The Argentine government has always bought freely of American railway supplies whenever money has been available, but of course the British and French companies look to their own countries.

In Chili where there are a little over 4,000 miles, the lines are mostly owned and operated by the government or by British interests. In the rest of South America, with a total of about 4,500 miles of railway, the lines are largely British, with some few under local control, though the Guayaquil & Quito in Ecuador is at least partly controlled by American interests.

The 1,500 miles of railway of Central America are controlled quite largely by interests associated with the United Fruit Company, are operated by American methods and their supplies are generally bought here.

Summing up the situation, therefore, it seems to the writer that the time has come when the manufacturers of the United States must find the means of extending their business with foreign countries in spite of, rather than because of the war. This is an economic necessity which is beginning to be realized by all those who are in any degree far-sighted. We must extend our foreign trade in manufactured products because we must progress, because the proportion of consumers to producers of food products within our own borders is continually increasing, because our exports of food products are becoming a less and less proportion of the values of our imports, and there must necessarily be some compensation.

A PLAN OF CAMPAIGN FOR TRADE

The campaign to secure this business, or a greater proportion of the business of South America, will be a long and expensive one and large results will probably only come slowly. It will probably be generally desirable for manufacturers of similar lines of goods to combine together and send down one or two thoroughly well posted and equipped representatives rather than to attempt to each send its own more or less mediocre man, and be prepared to continue the campaign for several years before there can be any hope of very substantial results. It may be desirable to select men of different types, one to first cover the ground carefully and fully to investigate the possibilities of the sale in any particular locality of a particular line or lines, he to be followed later by men more of the salesmen type to prosecute the campaign in certain specified localities.

Dependence can hardly be placed on the ordinary commission houses or export agents to carry on a really aggressive campaign or to make the investment it would require. This can only be accomplished by direct representatives having a definite object in view. Immediate or quick results cannot possibly be hoped for, as only the long continued, persistent campaign will get final results, and the expense will not be small.

During the initial period if orders are obtained, every care must be taken to see that they are filled to meet the requirements of the customers, even at considerable expense to the manufacturers, and possibly, even probably, with little or no margin of profit. Above all there must be some means of determining that the goods (especially any kind of machinery) shipped are reasonably sure to meet the requirements, and even further, that they are properly used. It will be far better to refuse orders than to sell goods that will not be useful to the buyer, and of course, this is one of the phases of the campaign where exceptionally good judgment will be required. There must be absolutely no attempt to foist left-overs and unsuitable goods on the people of South America. The fact must be remembered that these people are generally able and intelligent, and the higher classes almost always highly educated. They have not

*For more particulars see article in *Railway Age Gazette* of March 27 and April 3, 1914.

usually the genius for persistent attention to details, or the business ability which makes the Anglo-Saxon the successful manager of commercial enterprises; but they are by no means foolish or ignorant, as has been too often assumed. Many of them have been educated either in Europe or the United States, and are well posted in regard to the affairs of our times and in modern progress in the arts and sciences.

As already indicated, the writer believes there is very little prospect of the immediate extension of American trade with South America, owing to the generally prevailing financial depression and the great curtailment of the purchasing power of all these countries. Above all, it is no time to send a flock of young salesmen to South America with big trunks of samples, who will return with nothing but expense accounts bigger than their sample cases. It is, however, a time when a properly organized campaign may well be started, as it will be much easier now to obtain a hearing in many places heretofore more or less inaccessible than it was when the South Americans would only listen to those who were lending them money.

Gradually with the extension of our trade, which must and can only be built up hand-in-hand with our bankers and with the assistance and effective co-operation of the government, and with our more intimate knowledge of the people and their countries, it should be possible to build up and establish a reasonable credit system on a satisfactory basis, that is, that payment must be made promptly at the time specified, though not necessarily as now, cash against bill of lading. The long extended credit system now prevalent is probably the result quite as much of too great a desire to sell goods under any conditions, as of desire on the part of the South Americans to buy goods they could not pay for. It is to be remembered also that after this war the European nations will be in no better position than we are to extend credits, and that from now on, or as soon as our banking and financial machinery is adapted to it, we shall be in quite as advantageous a position as they are in this respect.

INVESTMENTS UNDER AMERICAN MANAGERS NEEDED

Any serious campaign for the extension of our trade must eventually contemplate a considerable investment of American capital in South American enterprises, under the direction of American managers, but in view of the fact that we ourselves always have been and still are (or would be) borrowers of European capital for the development of our own resources, it is not easily apparent just now how this is to be accomplished. There have been, however, certain recent indications that it may not be altogether impossible in the not too far distant future in spite of our own great needs. It will, of course, only come with the co-operation of our bankers after they realize from the direct information received through the agency of their own branches, ultimately to be established it is hoped in all the most important centers, what the needs and resources of South America are. Heretofore, of course, European capital which could only count on very low returns at home, has been obliged to seek foreign investments for greater returns. We ourselves could earn as much from investments in our own country as we could obtain abroad and without the additional risk. The war is going to change many of these conditions.

The financial depression now existing in South America is bound to be only more or less temporary, in spite of the war. It is possible that even now the worst of it may nearly be over, especially in those countries which produce the staple foods the world must have and which it must pay for. There may be some little difficulty for a while in regard to transport, but this also will quite likely be only temporary and the chances are that the increased prices which will be received for the cereals and cattle will partially make up for other losses, so that sooner or later the purchasing power will be restored, and if we are to be in a position to take advantage of it, we must begin now to make our preparations and lay our lines.

POSTOFFICE DEPARTMENT ECONOMY

J. E. Sexton, general manager of the Eureka-Nevada Railway, declares that the postoffice department in refusing to send the mails over his road is imposing on the citizens along the line a gross injustice; and he has written a letter of protest to President Wilson. In this letter, dated Palisade, Nev., September 20, he says, in part:

"Dear Sir:—Is the postmaster general of the United States honest? I respectfully submit this question to you, firmly convinced from the facts following that you cannot answer in the affirmative.

"I submit that with the knowledge and through the unfairness of the postoffice department the United States is being robbed; its taxpayers being unreasonably discriminated against as well as having the grossest character of injustice imposed upon its citizens residing at Eureka, Nev.

"I am the general manager of a little narrow gage railroad (that has been twice in the hands of a receiver in the last 15 years) operated semi-weekly between Palisade and Eureka, a distance of 84 miles. Alongside of this railroad is operated a mule-drawn vehicle carrying the United States mail, route No. 75,148, tri-weekly between the points indicated in 33 hours for the sum of $5,970 per annum; while our line makes the run in eight hours, and the postoffice department contend that they cannot under existing statutes, according to their interpretation, pay us more than $1,795.

"We are willing to perform the service tri-weekly in eight hours, or with 300 per cent more efficiency, for $5,300, and in addition perform the service of route No. 175,023, for which the department is paying about $875; or in other words, saving the United States more than $1,500 per year.

"Under date of January 12, 1914, I submitted a bid to perform service on both routes, and to serve two additional postoffices that have since been discontinued, for the sum of $6,269, as against the present combination price of $6,845, in eight hours as compared with 33 hours, but my offer was refused.

"I submit that the difference between what is now being paid for a 33-hour service and what the service could be performed for in eight hours is being taken from the Treasury of the United States wrongfully and amounts to robbery, and when our railroad can and will perform the service for more than $1,500 per annum less and with 300 per cent more efficiency the case presents an instance of unwarranted and offensive discrimination, to say nothing of the injustice imposed on the people whom we could and would serve, and who have petitioned the department and members of congress with sufficient frequency to have impelled the department, if it were honestly conducted, to have found a means to have met the prayer of said petitioners. . . .

"What excuse can a person, having taken an oath to support the constitution and perform the duties of any office, offer to justify sitting in silence and administering a law that robs its treasury? . . .

"Assume that a condition existed where the postoffice department had contracted the two routes referred to herein for $6,800 per annum service to be performed in 33 hours, and for some reason the statute were to forbid any consideration of a bid by a member of a labor organization in excess of $1,795, although the means of conveyance he would employ would perform the service 300 per cent more efficiently. How long do you suppose there would be any tranquillity around the postoffice department or the homes of members of congress? . . .

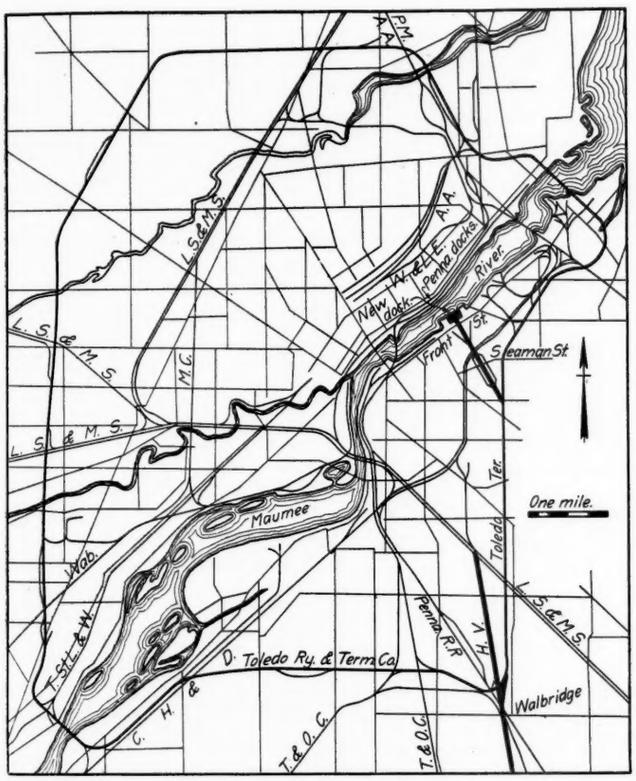
"Can you do anything in this case to see that we are permitted to enjoy the equal protection of the law? . . .

"Those who administer the affairs of the postoffice department are, as you can see, too narrow between the eyes to initiate anything that will free a railroad from abuse."

New Hocking Valley Coal Dock at East Toledo, Ohio

Providing Two Tipples, Each With a Capacity of 40 Cars Per Hour, and a 3,000-Car Yard and Approaches

The Hocking Valley Railway has had under way for some time a comprehensive improvement on the east bank of the Maumee river, at East Toledo, Ohio, to replace the coal and ore handling facilities formerly owned and operated by this company on the west bank of the river and reached over the tracks of the Pennsylvania Lines. The new terminal includes 1½ miles of running track approaching the dock, a 3,000-car storage yard, a coal-loading dock with two tipples, each having a capacity for handling 40 cars per hour, and an ore-loading dock, although the operating machinery for the latter dock has not been placed.



Map of Toledo and Vicinity Showing Hocking Valley Entrance and the Belt Line Used to Reach the New Dock

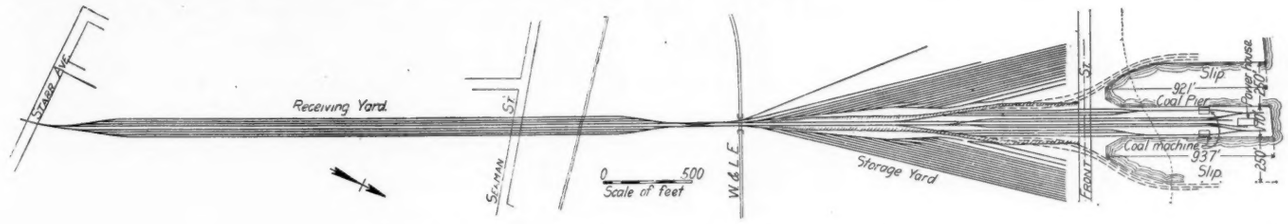
The Hocking Valley has been operating into Toledo over the Pennsylvania tracks since 1877. Until recently all of this company's freight trains crossed the Pennsylvania bridge over the Maumee river and used the Summit street yard and the adjacent dock frontage. Passenger trains entered by the same route until 1896, using a station located near the freight yard. In the last few years the passenger traffic has been diverted to reach the Union station over the Lake Shore & Michigan Southern. All freight, except coal, has also been diverted from the Pennsylvania tracks and is now routed to the Clover Leaf terminals.

The present improvements, comprising new docks with independent approaches, is the last step in the removal of the Hocking Valley trains from the tracks of the Pennsylvania Company in order to reduce the congestion on the latter road. The contract between the two companies, covering the trackage agreement, contemplated the abandonment of the Hocking Valley dock and machinery to the Pennsylvania Company when the trains of the former road should cease to use the line and Summit street yard of the Pennsylvania, and the present dock development is in fulfillment of this agreement.

The coal trade for the Northwest, which is handled over the Hocking Valley to Toledo and loaded on lake boats at that point, is very important and it was essential in the design of the new dock that ample facilities be provided for the economical handling of increasing quantities of this business. The coal originates at about 95 mines along the Hocking Valley, the Kanawha & Michigan and the Norfolk & Western in the southern Ohio and West Virginia fields, requiring a haul of from 200 to 500 miles. The maximum tonnage handled at Toledo by the Hocking Valley during a single navigation season has been 2,700,000 tons, with a daily loaded car movement into the terminal running as high as 458 cars. The new dock facilities will make possible the loading of about 10,000,000 tons in a season, a vessel of 12,500 tons cargo, which is about the largest in use on the lakes, being filled in 6¼ hours by one machine. In addition to more than doubling the rated dock capacity, the improvement provides a much more direct line from the company's northern freight terminal at Walbridge, five miles south of Toledo, and a much improved yard serving the dock. The long, high crossing of the Maumee river is also avoided.

CONNECTING LINE AND YARDS

As shown in the accompanying map, the new dock will be reached from Walbridge by using about 3½ miles of the line of the Toledo Terminal railroad, an interchange belt line encircling the city, and 1½ miles of new line extending from the belt line to the river. This new line passes through a thinly settled section of the suburb of East Toledo, and on account of the commercial advantages of the location of the new dock in this portion of the city, the company was allowed to occupy certain streets with the understanding that other necessary streets be donated to the city. No grade crossings are involved in the new work, one street being carried under the tracks and one street and the tracks of the Wheeling & Lake Erie being carried overhead. In order to handle the additional traffic over the belt line between Walbridge and the dock connection, this portion of the road has been double-tracked.



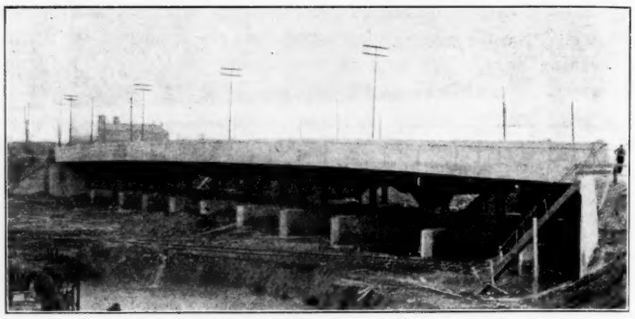
General Plan of the New Coal Pier, Yards and Approaches

The economical separation of grades at the crossings with the two streets and the Wheeling & Lake Erie was one of the principal problems in the location of the dock. The country adjoining the river near the dock is generally level with an abrupt river bank about 28 ft. high. In order to approach the dock at

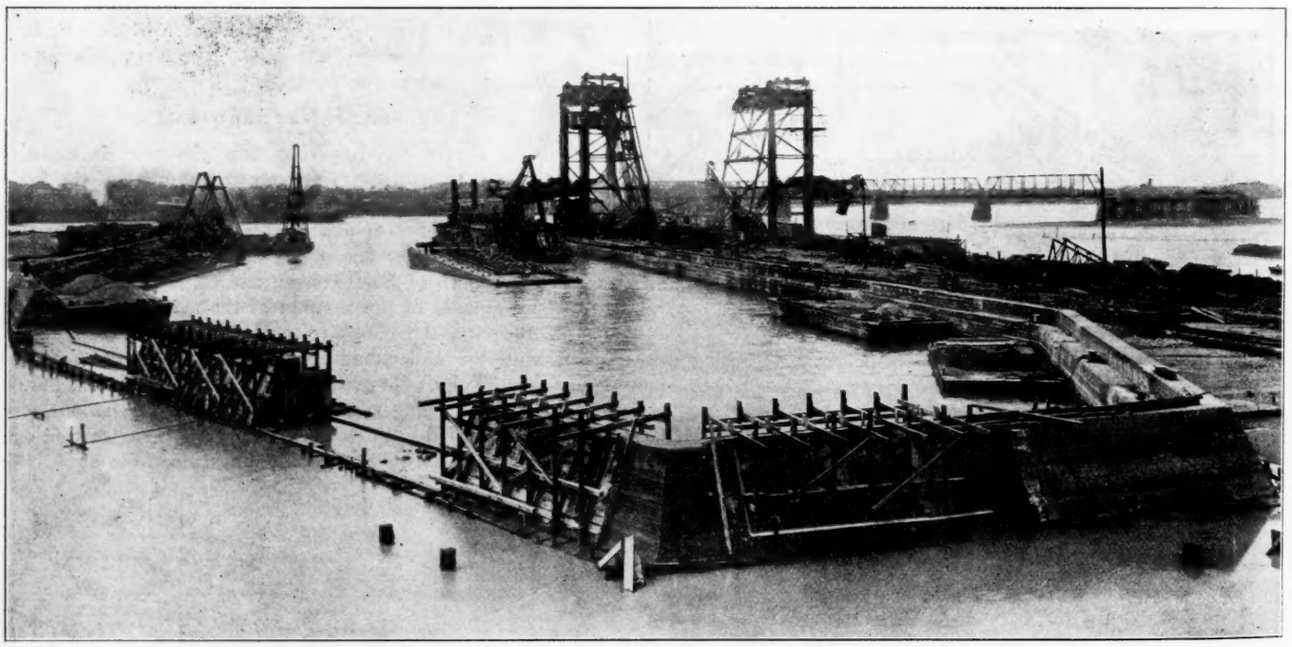
the proper grade a cut with a maximum depth of 21 ft. near the river was required, running out to the ground surface about one-half mile from the river. As Front street is parallel to, and only a short distance from the river, it was only required to be elevated about four feet to secure the necessary clearance over the new tracks. At the crossing of the Wheeling & Lake Erie the new cut is only about four feet deep, requiring the elevation of the Wheeling tracks about 16 ft. This fill was made of earth taken from the excavation made for the dock approach tracks, involving, in addition to the structure carrying the old line over the new dock connection, a subway to carry Seaman street under the elevated line.

A short distance beyond the Wheeling crossing the new line crosses a ravine 600 ft. wide and 35 ft. deep. This ravine is skirted on the south by Seaman street. A subway was built to carry this street under the tracks, and a reinforced concrete box culvert was constructed in the bottom of the ravine to the north of the street. This ravine afforded a convenient point to waste the material excavated from the adjacent cut.

A receiving yard occupies practically the entire distance between the Terminal belt line connection and the crossing of the Wheeling, and a storage yard extends from the latter crossing to Front street. Two running tracks extend through the center of these two yards to the dock. The receiving yard contains 8 tracks and the storage yard will ultimately have 60 stub tracks, although the development of this yard will depend somewhat on the growth of the business. The receiving yard has ladder connections with the running tracks at both ends, but the storage yard is fan-shaped, with ladders only at one end, this layout being necessary in order to lay the yard tracks practically on the original ground surface, while the running tracks are on a lower grade in the cut. The ultimate capacity of the yard will be 3,000 cars. The yard tracks are laid with 67-lb., relay rail, with 80-lb. rail on the running tracks and ladders. No. 8 rigid frogs are used on ladders of No. 7 angle. Manganese guard rails and frogs are used throughout.



The Front Street Viaduct Before the Tracks Were Laid Under It



General View of New Dock Showing the Two Dumpers and Slip Wall Under Construction

NEW DOCKS

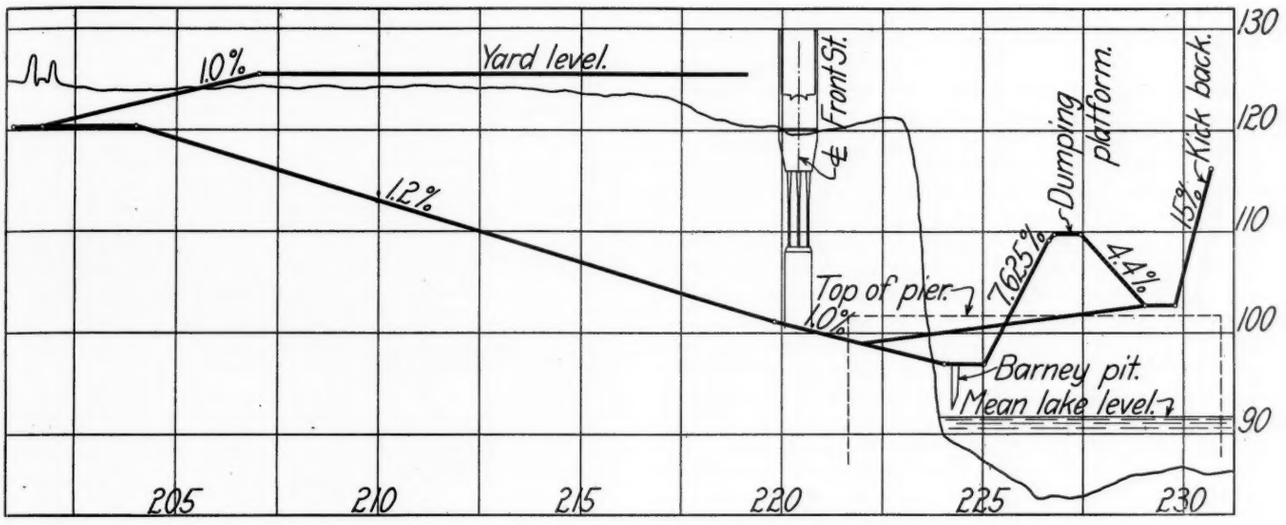
The water frontage along the river is 1,600 ft. in length, of which 1,200 ft. will be occupied by the new coal and ore docks. The middle of the frontage is occupied by the coal pier, which is 170 ft. wide and about 900 ft. long. On either side of this coal pier is a slip 250 ft. wide and about 850 ft. long, in each of which four vessels can be docked. These slips are dredged to a depth of 23 ft. The down stream slip is only being finished to a width of 125 ft. at present, the remaining width to be completed when the ore dock on that side is required.

The dock wall surrounding the coal pier is founded on four rows of 45-ft. white oak piling, with a row of 30-ft. Lackawanna steel sheet piling driven just inside the second row of supporting piles, to retain the wet sand fill which forms the body of the dock. The dock wall is of concrete, reinforced in both directions, extending 4 ft. below mean water level and 10 ft. above it. The maximum width of the wall over the heads of the piles is 16 ft. 6 in. The side walls of the coal pier are anchored together by 2¼-in. tie rods, and the end wall is similarly anchored to pile clusters driven in the fill. The face of the concrete along the dock line is protected from damage of boats by the insertion of three 10-in., 25 lb. I-beams, flush with the surface of the concrete. Eye-bolts and rings for attaching guard timbers are located in recesses along the face of the dock. Cast iron mooring posts are spaced 50 ft. center to center along the dock face securely anchored to the concrete wall.

The wall enclosing the ore dock on the up stream side of the coal pier and across the slip is supported on cribbing. After the dredging had been done, heavy timber cribs built up of 2-in. by 10-in. and 2-in. by 12-in. timbers were floated into position and sunk. They were anchored in position by piling driven in the

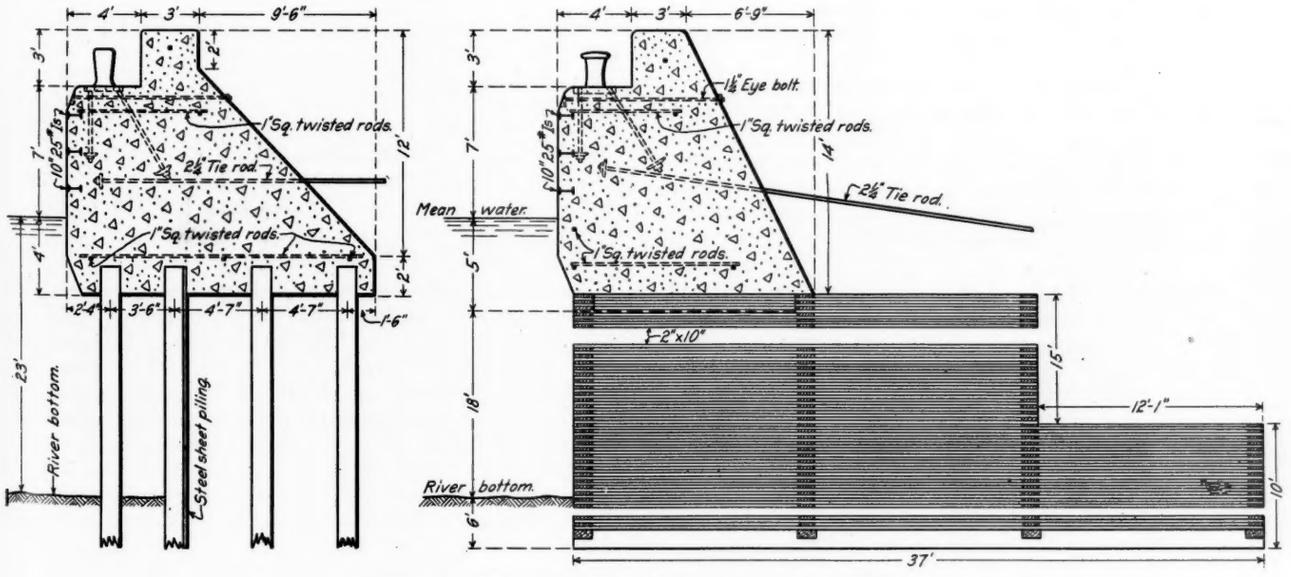
inside corners and were subsequently filled with sand. On these cribs as a foundation a reinforced concrete wall, similar in general design to the coal pier wall, was built.

The two tipples located on opposite sides of the pier about midway of its length are of structural steel, occupying a ground area 40 ft. by 60 ft., and having a height of 100 ft. They are designed to handle any type of coal cars up to 52 ft. in length and 270,000 lb. in weight at a rate of 40 cars per hour. The power for the operation of the dock is generated in a power house, 42 ft. by 112 ft. in size, located near the end of the pier between the two switchbacks. It is divided by a fire wall into a boiler room and combined engine room and machine shop. The boiler room contains three Scotch marine boilers, 12 ft. 6 in. in diameter by 16 ft. in length, with a rated capacity of 375 h.p. each. Automatic stokers, suspended ferro-inclave coal hopper, feed water heater, pumps, and force draft under automatic control



Profile of Tracks on the Dock and its Approaches

loaded cars are set down a grade of 1.2 per cent from the storage yard into three 20-car tracks for each dumper, the cars running singly by gravity from these tracks down to the foot of the tipple track incline. This incline has a grade of 7.625 per cent, reaching an elevation on the cradle 18 ft. above mean water level. The empty car run-off track on the other side of the dumpers has a grade of 4.4 per cent, ending in a switchback from which the cars go down an easy grade to two 30-car empty tracks for each dumper located between the tipples. A switch engine is able to place 20 loads and pull out 30 empty cars. The weight of each tipple complete is approximately 1,500,000 lb., the concrete footings being designed to stand this loading under the most severe strain.



Typical Cross Sections of Dock Walls on Piles and Cribbing

are provided. A separate spur track connecting with one of the empty tracks is used to deliver coal to a hopper serving these boilers.

The machine shop contains shop tools, lathes, planers, etc., necessary for making quick repairs. The engine room contains two 75-k.w. d.c. generators which supply electric current for lighting the dock and for operating the telescopic spouts on the dumpers. The steam required for the operation of the large steam engines, located within the framework of the two dumpers, is carried through large steam pipes in a 5-ft. by 6-ft. reinforced concrete tunnel about 260 ft. long. The power house is a brick structure with a 125-ft. concrete stack. The operation of each machine requires five operators, one oiler and 14 laborers. It is

estimated that 25 tons of slack will operate the power plant for a day when both dumpers are in operation.

STRUCTURES

The Seaman street bridge, carrying 12 tracks, is a two-span, trough floor structure, designed to harmonize with a proposed boulevard development contemplated by the city. The floor troughs are 19½ in. wide and 21 in. deep, spanning from the abutments to the center support parallel with the tracks which cross the street at a slight skew. Concrete facia girders are provided along the ends of the structure and the end columns of the center support are also encased in concrete to give the structure the appearance of a concrete bridge. The floor troughs are filled with concrete, with the exception that a line of 12-in. vitrified tile is laid in each trough to effect a saving in the amount of concrete and to reduce the dead load on the structure. The reinforced box culvert at the bottom of the ravine is 300 ft. long and has a 10-ft. by 12-ft. opening.

The bridge carrying the two tracks of the Wheeling & Lake Erie over the Hocking Valley is a through girder structure, a center girder being provided in order to allow the use of a shallow floor of 15-in. I-beams, spaced 16 in. center to center. The rails are fastened directly to these I-beams by Ritter adjustable rail clamps. The Front street viaduct is a steel structure encased in concrete, being 380 ft. long and 66 ft. wide. It is designed to span 16 tracks on the lower level and to carry a double-track street railway in a 40-ft. roadway with 11-ft. sidewalks on each side. Three-column steel bents with collision piers enclosing the bottoms of the columns support transverse steel girders, on which are supported the I-beams encased in concrete which comprise the bridge floor. An ornamental concrete balustrade is provided along the faces of the bridge to prevent pedestrians from falling over and to shut out the view of the yard below.

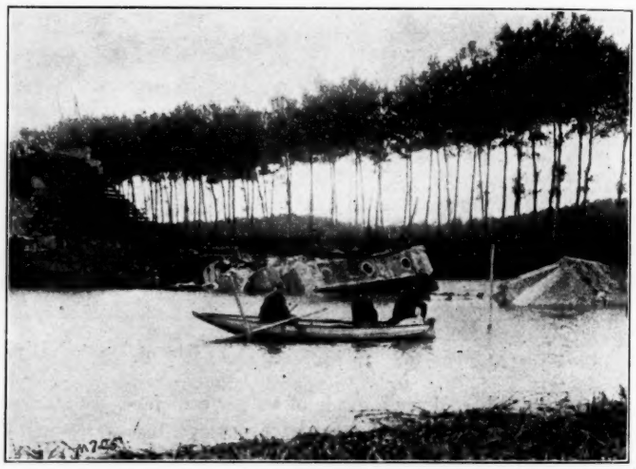
The grading work for this improvement required the handling of 400,000 yd. of material, most of which was a hard, tenacious, blue clay, which was very difficult to excavate and distribute. Explosives had practically no effect on it and steam shovels were able to make but slow progress. The dredging in the slips and channels out into the river involved the handling of 650,000 cu. yd. of material. The concrete in the bridge abutments, footing and piers amounted to about 7,600 cu. yd., and in the dock walls 25,000 cu. yd. All concrete on the work was mixed in the proportion of 1:3:5.

This improvement work has been carried on under the direction of W. Michel, chief engineer of the Hocking Valley; D. W. Smith, assistant engineer, and W. L. Roller, resident engineer. The Great Lakes Dredge & Dock Company, Cleveland, Ohio, had the contract for the construction of the dock and the power house and for the dredging. The Fritz-Rumer-Cooke-Grant Company, Columbus, Ohio, placed the bridge masonry, and the Toledo Bridge & Crane Company, Toledo, Ohio, and the Mt. Vernon Bridge Company, Mt. Vernon, Ohio, fabricated the bridge superstructures. The erection of the bridge was done by company forces. The grading was done by J. T. Adams, Columbus, Ohio, and the car dumpers were designed and erected by the Brown Hoisting Machinery Company, Cleveland, Ohio. The work was started in December, 1912, and the first dumper was ready for operation at the expiration of the company's contract with the Pennsylvania on July 1, 1914.

PEAT AS FUEL ON THE SWEDISH RAILWAYS.—The question of employing pulverized peat as fuel for locomotives has been under consideration by the Swedish railway authorities since 1909, and several experiments have been made with a view to ascertaining the cost of the material as compared with coal, and also its suitability for the various types of engines. One of the State Railway locomotives has been altered so as to employ the new fuel. This engine has now for some time past been used in regular traffic between Stockholm and Upsala with favorable results, both from the technical and economic points of view.

RAILWAY AFFAIRS IN OTHER COUNTRIES

For rather obvious reasons hardly anything has been allowed to leak out thus far regarding the railway activities on the European continent in connection with the present war. It is only possible, therefore, to obtain facts about the part that the railways are playing by correlating various items of information that may have appeared in the daily papers. The reports agree that the various administrations are performing the emergency duties put upon them remarkably well. The German railways, in particular, seem to have done some remarkable work. The railways of Belgium and France have not had similar burdens put upon them, but the engineers of the latter are now engaged in a reconstructive work of great importance. The French possess a very efficient and enthusiastic force whose duty it is to rebuild the damaged railways and bridges as the army moves for-



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Railway Bridge Destroyed by Germans at Battle of the Marne

ward. The organization of the body appears to be excellent. Particulars of all the destroyed structures, for instance, are known and arrangements have been made for the restoration of these structures as soon as the invaders have moved clear of them. The rebuilding of the Belgian railways may very likely also form part of the work to be accomplished by the French military engineers. It will be remembered that the Belgians despatched a considerable number of locomotives and cars for safety into France some weeks ago. The Germans also appear to have brought many of their troops across the frontier in their own cars.

* * *

The Northwestern Railway of India has recently completed a new locomotive repair plant which ranks among the largest of its kind in the world. The Northwestern of India operates about 5,000 miles of 5 ft. 6 in. gage track, and the new shops at Moghalpura near Lahore have been designed to handle the heavy repairs on about 800 engines. The pay-roll numbers 5,000 men. The shops are laid out on either side of a 45 ft. transfer pit 1,160 ft. in length and will accommodate 80 locomotives, the output being 36 repaired engines per month. The principal building of the plant is 537 ft. 4 in. wide by 703 ft. long, parallel to the transfer pit, and is divided into 12 transverse bays. It contains the tender shop, erecting shop, fitting shop, machine shop, wheel shop, millwright shop, tool shop and brass finishers' shop. In a separate building near one end of the main building is located a foundry where both gray iron and brass castings are made. The iron foundry has four cupolas, the aggregate capacity of which is 20 tons of metal. Near the other end of the main building is the locomotive paint shop, a small building which will house six locomotives and tenders. On the opposite side of the transfer pit are located the stripping pit, the boiler

shop, the copper and tin shop, the smith shop and the locomotive material stores.

The arrangement of this shop differs from that followed in this country, where a transfer table is used. Intsead of arranging the erecting shop in a bay parallel to the transfer table, with individual pits each served by the table, the erecting shop occupies three bays extending entirely across the building, the moving of engines within the shop requiring the services of overhead cranes. Locomotives pass over the transfer table only when entering the shop. After the repairs have been completed the engine and tender leave their respective shops from the side opposite to the transfer pit, where the engine is fired up and tested in a shed provided for that purpose. After receiving a trial trip the locomotive is run into the paint shop for finishing.

CORRECT THEORIES OF AUTOMATIC BLOCK SIGNAL CONSTRUCTION*

Sub-committee No. 5 of Committee No. 4, having in hand the work of designing circuits for single track automatic block signaling, has . . . made a careful study of the various schemes in use on the railroads of the United States.

In our study of single track blocking, we find that no automatic system compares favorably with the "Lock and Block" or "Controlled Manual" systems, and in the design of the circuits submitted at this meeting the sub-committee has endeavored as far as possible to embody the same characteristics as those of the latter, omitting, of course, the manual control features.

Controlled manual systems, each differing from others in minor details, have been used on a number of our principal railroads for the past 20 years, and notwithstanding the differences in matters of detail, all are designed to prevent the clearing of opposing signals between passing sidings.

The system that appeals to us as being the safest and best provides:

(a) Continuous track circuit between passing sidings, controlling electrically locked traffic levers and semi-automatic signals.

(b) Traffic levers in adjacent towers, located at passing sidings, each equipped with normal electric locks.

(c) Electric locks controlled (a) by all track circuits between opposing signals governing from passing sidings, (b) by circuit breakers, closed only when the signals between passing siding outlets indicate "stop," and (c) by an operator in the next tower working in conjunction with the operator at the home station.

(d) Traffic levers controlling direction relays, wired in such a manner as to cause the signals in both directions to indicate "stop" if for some unknown reason both traffic levers should be unlocked at the same time.

(e) Semi-automatic signals, controlled by the direction relays, and arranged to permit trains to follow one another as in double track signaling.

This system provides an absolute check on each track circuit section and on each signal mechanism between passing sidings, whenever the direction of traffic is changed; and it is this feature, the equivalent of indication locking, which makes controlled manual systems safer than straight automatic systems. The direction of traffic cannot be changed if the section between passing sidings is occupied by a train, or if one of the signals should be stuck at clear, when the traffic lever which was reversed is put normal. The controlled manual system requires seven line wires between passing sidings, viz.: Lock, traffic in each direction, home in one direction, and distant, serving both directions, combined bell and telephone, and common. This number is increased within the passing siding limits in proportion to the number of units directly controlled from the home station.

In comparing automatic systems now used, with the controlled manual system already explained, we find that equal safety is not provided, and seeing that the average single track railroad has not sufficient business to afford a controlled manual system, the question arises: Is it possible to design circuits for single track automatic blocking, following the general principles of controlled manual, or the equivalent?

In single-track automatic signaling we have electrically controlled apparatus, governed by track circuit relays, and, with signals in both directions usually indicating proceed, block sections are usually from one to three miles in length. Signal motors and slots are in all cases controlled by line relays, the latter being governed by all track relays throughout the block section. Line wire is generally located on telegraph poles and below telegraph wires.

The single control with common return system is in general use; but as we are compelled to depend for our signal indications, both opposing and following, upon the making and breaking of line relays which are susceptible to crosses and grounds, resulting too frequently in the relay coils remaining energized and either following or opposing signals indicating "proceed" when the block is occupied, we believe that it is important that something be done to produce greater safety, even if not the equivalent of that obtained through the use of a controlled manual system. . . .

When the oldest types of signal apparatus now used, such as fuse shunt and open-faced relays, clock-work and disk banner signals, were first introduced, many of us felt that the day of perfection had arrived. This apparatus was good, but not good enough. Progress has been made because there were men who, recognizing the faults, set out to remedy them. If the first trial proved too costly or ineffective, they tried again, and kept on trying until today it can be truly said that the signal system is second to no other branch of transportation service.

Notwithstanding this fact, however, we are doing some things today which must be improved upon. We must have greater protection against opposing trains than our present systems afford. The single control automatic system is identical with that of the interlocked power apparatus, without indication locking; and there is not a signal engineer present who would depend for his signal indications at interlocking plants entirely upon the making and breaking of circuits by the controlling lever. A check or indication lock, checking the position of the signal against that of the controlling lever is demanded, for neither the power apparatus nor the controlling circuits are entirely immune from mechanical or electrical defects. We have recently heard of one road which, at interlocking plants, now requires both the positive and the negative sides of signal circuits to be broken by the controlling lever, in addition to the indication locking, unless cross protection of some description is provided.

As to the patent situation, no one seems to know what is claimed by the different manufacturers. However, the research made by this sub-committee leads us to believe that no individual or company can broadly claim a system wherein the direction of traffic is automatically established by trains.

The nomenclature and method of drawing employed in our plans now presented show present practice, but are subject to change whenever this association adopts a standard system; but we earnestly recommend that no set of plans be accepted as final which does not clearly show the location of each wire terminal, each lightning arrester, each fuse, ground plate, wire location, relay box and junction box; in fact, every part that goes to make up the complete plan. Using a complete plan, we are enabled, first, to reduce the cost of construction, by having the details worked out by competent engineers, and, second, to better maintain the apparatus, and with men of less experience than would be required if the plans were not complete. . . .

Progress in the art of signaling enables us to accomplish today that which was formerly considered unsafe, viz.: to meet and pass trains on a single track railroad without issuing written orders to trainmen. On the Baltimore & Ohio we do this through the use of a controlled manual system. It is the ideal system for handling heavy traffic over a single track railroad, and in the design of circuits for automatic blocking, the question which naturally arises is: How can we, through the use of an automatic system, obtain protection equal to that provided by the controlled

*Report of sub-committee No. 5 of Committee No. 4 of the Railway Signal Association. Presented at Bluff Point meeting, September 23. The proceedings of this meeting were reported September 25, page 564, and October 2, page 612.

manual system? We do not claim to have succeeded in all that we have set out to accomplish, but we do claim to have improved the circuit requisites, and to the best of our ability we have designed plans covering those requisites. . . .

The circuit requisites on which the plans now offered are based are as follows:

(a) Signals so located as to provide adequate spacing and protection against opposing movements. At a meeting of the full committee in Buffalo it was agreed by a majority of the members present that outgoing signals from passing sidings should be located at or near the fouling of the passing siding, rather than beyond the main switch. At interlocking plants, and where controlled manual systems are in service, signals are always located at the foulings. The same location system should be used whether in manual or automatic territory. The location of signals in single-track territory should be so arranged that trains, where meeting, will be separated a sufficient distance apart to allow for a slight over-run without resulting in a collision; the incoming signal at passing sidings 50 ft. from the switch point, and the outgoing signals at the fouling. This affords a safe stagger, and at the point where needed; at the point where it will allow the incoming train to take siding. At intermediate signals between siding outlets, the signaling arrangement should provide that opposing trains be stopped by signals not less than 1,000 ft apart.

(b) The control of signals to be such as to provide (1) positive block indications against opposing trains between passing sidings; (2) whether in terminal territory or on the line-of-road, the giving of a signal at the entrance of a block should depend upon the opposing signal governing into the same block indicating stop; (3) stop, caution, or clear indications for following movements, as on double track; (4) that two trains meeting at a passing siding shall each first receive a caution indication before reaching a stop signal; (5) protection for switches and switching movements as on double track; (6) cross and ground protection, such that neither a single cross nor any combination of grounds will cause the energization of the controlling or signal operating devices.

This requisite is, I believe, principally responsible for the division of opinion in Committee No. 4. However, if requisite "b" is correct, if the control of signals should be such as to afford positive block indications against opposing trains, then it is essential that the control of the opposing signal shall be as positive as can be made.

Under the controlled manual system, we have, through the electric locking, a physical check against the opposing block signal indicating stop, and under the system used on the Baltimore & Ohio we have a further check through the controlling circuits being arranged so as to require joint operation between traffic levers. Without this joint operation the signals in both directions will indicate stop.

This means that in case the electric locking should fail, so as to enable the levermen to each secure traffic combinations at the same time, the signals controlled by the traffic levers, instead of indicating proceed, as is the normal condition in automatic territory, must indicate stop in both directions, because the controlling circuits are open.

In automatic blocking the safest scheme would be to break the control wire through opposing signals, and a tracing of this character was prepared by the sub-committee, of which I am chairman, and presented to the full committee, but as the number of line wires required is excessive, the plans now offered are considered best suited to meet general conditions.

We have shown that under the single control system a cross between the control wire and any other wire carrying battery will result in a false clear indication being displayed, with the block occupied. We have also shown that almost any combination of grounds will cause a false clear indication with the block occupied; and if the false clear signal is one for movements opposite to the direction of traffic, something other than the signal system must be looked to to prevent a butting collision. It is important that we avoid having false clear signals, particularly in single track territory, and if practicable we must design our signal system so that when every other safety factor has failed the signal may be relied upon. Good maintenance is not, of itself, sufficient to obviate false clear indications caused by grounded circuits. How many signal repairmen are there today who possess the knowledge or who have the necessary instruments for measuring the insulation resistance of a circuit? Grounded circuits cannot be foreseen unless the circuits are arranged in such a way that certain combination of grounds will cause a stop signal.

The question may now be asked: Is it possible to design signal circuits so that no combination of grounds will cause the energization of the controlling or signal operating devices? And, if so, is the scheme practicable? And what is the additional cost?

In double-track signaling, the direct control of both sides of the signal motor through the track relay affords reasonable insurance against the effect of crosses, and this practice is followed on the principal railroads.

In semi-automatic territory the indication or back check provides the safety features desired. In single track automatic signaling we must have direct control through a breaker on the opposing signal, closed only when the signal indicates stop; or else double control, as shown in plans now presented, must be provided. This is the only solution known to this sub-committee.

Two other points must be considered. These will be numbered 7 and 8.

(7) That two opposing signals governing into the same block shall not display the proceed indication simultaneously, authorizing trains to move opposing each other.

The sub-committee has recently checked and criticised plans that are so arranged that the overlapping sections are ineffective under certain conditions. This is unsafe. It is desirable to avoid stopping trains unnecessarily; but safety must not be sacrificed.

(8) That two opposing signals governing into the same block shall not display the proceed indication simultaneously, authorizing two trains to move from passing sidings opposing each other.

There are in service several hundred miles of signaling wired under what is known as the A. P. B. system, some with, but mostly without what is known as the "siding overlap in one direction." Under the A. P. B or traffic assigning system we have short blocks for following movements, and long blocks extending from one passing siding to the next for opposing movements.

Paragraph No. 8 refers to the long opposing block. This system of signaling enables us to place signals opposite, under certain conditions, thus cheapening the cost of construction. But requisite No. 8 is not covered except where the siding overlap is used. This serves as an overlap for trains in one direction only and is sometimes referred to as a provisional overlap. The wiring of the traffic-assigning stick relay is more complicated than at points where the signal circuit breaker is used as a timing element. However, on account of trains meeting at the passing siding and the necessity for incoming trains flagging past signals indicating stop, it is essential that the traffic-assigning stick relays at sidings shall operate for incoming trains whether or not the signal indicates proceed.

The improvements added over present methods (in the drawings now presented) are: First, double control as against single control. The latter requires three line wires between passing sidings and the former four line wires and two extra relay contacts. The added cost per signal (spaced one mile apart between passing siding outlets) is $35. Second, the use of a siding overlap. This sub-committee contends that the siding overlap, fulfilling requisite "b" to the letter, is necessary in single track signaling, and, therefore, should not be classed as an addition. Third, the placing of outgoing signals from passing sidings at the fouling point instead of beyond the main switch conforms to general principles in signaling used elsewhere and is therefore a correction, the cost of which should not be considered. . . .

We advocate the use of a separate and distinct signal indication for the government of trains going out of passing sidings. We should forget what is being done on the X Y Z Railroad and confine our thoughts, first, to providing correct single track circuit requisites, and, second, to the design of circuits properly meeting those requisites. . . .

Practical Hints on Operation of Terminal Yards

First Set of Contest Papers in Which Operating Men Discuss All Phases of This Very Important Problem

Twenty-nine papers were received in the contest on the Operation of Terminal Yards, which closed on September 15. These papers were turned over to the following judges: W. J. Jackson, receiver and general manager, Chicago & Eastern Illinois; H. G. Hetzler, president of the Chicago & Western Indiana, and F. C. Batchelder, president, Baltimore & Ohio Chicago Terminal. The judges awarded the first prize to the paper submitted by William L. Burt, assistant freight trainmaster, Pennsylvania Railroad, Jersey City, N. J., and the second prize to that prepared by F. L. Hutchins, Baltimore, Md. The judges were very favorably impressed with a number of other papers and felt that special mention should be given to those submitted by D. S. Farley, division superintendent, Atchison, Topeka & Santa Fe, Kansas City, Mo., and F. H. Garner, transportation inspector, Union Pacific, Omaha, Neb.

Other contributors to this contest were: W. T. Sutphen, general yardmaster, Southern Railway, Macon, Ga.; W. B. Hinrichs, superintendent of terminal, Chicago, Milawukee & St. Paul, Milwaukee, Wis.; Fred P. Grossman, general yardmaster, Chicago, St. Paul, Minneapolis & Omaha, Minneapolis, Minn.; C. A. Pennington, superintendent of terminals, Cleveland, Cincinnati, Chicago & St. Louis, Louisville, Ky.; V. R. C. King, division superintendent, Atlantic Coast Line, Wilmington, N. C.; H. H. Larson, yardmaster, Union Pacific, Council Bluffs, Transfer, Ia.; Richard Brooker, yardmaster, Canadian Pacific, Portage la Prairie, Man.; Z. Middlebrook, trainmaster, Atlantic Coast Line, Florence, S. C.; M. A. Mulligan, trainmaster, Lehigh Valley, Jersey City, N. J.; James M. Fox, yardmaster, Southern Railway, Winston-Salem, N. C.; E. C. Tucker, yardmaster, Norfolk & Western, Portsmouth, Ohio; G. G. Butler, Southern Railway, Washington, D. C.; W. C. Copley, freight trainmaster, Pennsylvania, Altoona, Pa.; I. T. Tyson, assistant trainmaster, Philadelphia & Reading, Port Richmond, Philadelphia, Pa.; R. M. Baker, Pennsylvania Railroad, Bellwood, Pa.; O. C. Hill, assistant superintendent, Chicago, Burlington & Quincy, Kansas City, Mo.; J. E. Campbell, freight agent, Pittsburgh & Lake Erie, Bessemer, Pa.; J. R. Hamilton, terminal trainmaster, Delaware, Lackawanna & Western, Buffalo, N. Y.; G. B. Schrand, trainmaster, Chicago & North Western, Chicago; G. D. Brook, division superintendent, Baltimore & Ohio, Chillicothe, Ohio; W. L. Derr, superintendent, Chicago Great Western, Clarion, Ia.; J. H. Hopkins, Pennsylvania Lines West, Columbus, O.; J. W. Roberts, superintendent of car service, Vandalia, Terre Haute, Ind., and R. R. Farmer, trainmaster, Missouri, Kansas & Texas, Parsons, Kan. The first prize paper is published below and other papers will appear in later issues.

FIRST PRIZE—PRACTICAL CONSIDERATIONS IN THE OPERATION OF A LARGE TERMINAL YARD

By Wm. L. Burt

Assistant Freight Trainmaster, Pennsylvania, Jersey City, N. J.

While there are many things in common in the methods of operation of a purely classification yard and of a terminal yard, the latter presents many complications which do not exist in a classification yard, not the least of which are the receiving and despatching of trains through the same throat of the yard; the placing of loaded cars at various parts of the terminal for unloading and the placing of empty cars for loading; the serving of the station, individual sidings, warehouses and industries, many of which demand the most exacting switching service. At tide water terminals the despatching of cars on floats to various destinations and the assembling of cars from floats for despatching in road trains is also a very important feature.

PERSONNEL

As no system or organization can be more proficient than those responsible for its operation, it necessarily follows that great care should be exercised in selecting employees for the various positions in the organization of a large terminal yard. The selection of a suitable yardmaster is of course of paramount importance. Experience has proven that no established rule of succession can be followed in this respect. It does not necessarily follow that a man who has given satisfaction as an assistant yardmaster possesses the proper qualifications for a yardmaster. Some may be able to execute faithfully and satisfactorily the work allotted to them and manifest a high degree of subordinate efficiency and at the same time be entirely lacking in the administrative ability required of a yardmaster. He should be a man whose predominating characteristic is the obtaining of results with the least amount of friction and confusion. Other than the regular qualifications for the position there should also be taken into consideration, age, physical condition, regularity in attendance to duty, capacity for management and administration, intelligence and judgment in the handling of men, education and moral deportment.

Too much care cannot be exercised in selecting assistant yardmasters as this is the usual line of succession to the position of yardmaster. As in the selecting of a yardmaster, there should be no established grade from which to choose. In some localities it is the practice to use only trainmen for these positions, but this has many decided objections, not the least of which is the element of doubt as to their loyalty to the company's interests. In selecting assistant yardmasters from various positions in the organization it stimulates all to a spirit of emulation which naturally redounds to the benefit of the company in the increased efficiency resulting from this method.

As yardmasters and assistant yardmasters are developed largely from clerks, trainmen, etc., it is important to exercise care in their initial employment. The practice of requiring satisfactory references from former employers has become universal. This should also be augmented by an educational test and physical examination in order to eliminate all those who may not be fitted, either physically or intellectually, for advancement to a higher grade of the service. All applicants for employment in any grade whatever should be interviewed personally by the trainmaster or assistant trainmaster. They should be cautioned to avoid the use of intoxicants, to observe the rules of safety, to avoid the company of those showing a tendency to violate the rules of the company and to report such violations, and to become conversant with the orders and instructions displayed on bulletin boards. At the end of 90 days they should be given an examination as to their knowledge of the book of rules, regulations covering the handling of explosives, rules of safety, special instructions, etc. Failing to pass a satisfactory examination, they should be given 30 days for further preparation for a second examination and an additional 30 days in case they fail to pass the second examination. Failing to pass the third examination, they should be dropped from the service.

RECEIVING, CLASSIFYING AND DESPATCHING

It is necessary for a terminal yardmaster to have a detailed report of every train destined to his yard as it is despatched from the other end of the division and to be advised when it is within a certain distance of the terminal in order that preparations may be made to receive it without delay. Several passing sidings just beyond the limit of the terminal will be found to be of great advantage in permitting trains of live stock and other high class freight to pass around those of less importance when there is

not sufficient room in the receiving yard to accommodate all of the trains without delay. Upon arrival at the terminal the air hose should be uncoupled between each car of all trains of mixed classifications before the train is classified. This can be done quickly with an uncoupling fork without going between the cars —a good position for a crippled trainman.

Upon the arrival of the train in the yard the conductor should send his waybills and mail to the yardmaster's office at once together with a list of the initials and numbers of the cars in the order in which they stand in his train. This list and waybills are then checked for any diversions, hold for orders, changes in destination, etc., after which the train is ready to be marked for classification. Every yardmaster's office should keep a classified car record which provides for the entry of a certain car number in but one place in the book. When orders are received in advance of the arrival of a car for diversion, hold for order, change in destination, etc., the number of the car should be entered in this particular space in red ink in order that the instructions may be brought to the immediate attention of the car record clerk in checking up the train. While this work is in progress the car inspectors should be inspecting the train in order to have the inspection completed by the time the train is marked for classification. The date of arrival should be placed in numerals at the corner of each car. This will be found to be valuable information in avoiding delays to cars, as every car in the yard will then have the date of arrival marked in plain view and save considerable time in checking the yard for delayed cars.

The writer has long been an advocate of equipping large yards with pneumatic tubes, having stations located at each end of the yard connected with the main office. This will permit the immediate despatching of all waybills, mail, etc., to the main office from incoming trains, effect a saving of at least one-half hour in the checking and classifying of every train taken into the yard and avoid the delays incident to the wanderings of messenger boys or some member of the train crew discovering the mail in his pocket several hours after arrival at his home miles away from the terminal. Where this tube system has been installed it has effected a saving estimated at approximately $500 per day in the handling of about 175 trains. In marking cars for classification the following method will be found to be of considerable advantage: If the first draft consists of four cars for "A yard" "A 4" should be written in chalk on the front of the first car where it can be plainly seen by the switchman. The last car in each draft should also show the classification and number of cars in the next draft. For instance: If the second draft consists of three cars for "B yard" the notation "B 3" should be made in chalk on the back of the last car of the first draft and also on the front of the first car in the second draft. This method will enable the switchman or leverman to read on the last car of each draft what the next classification will be before it reaches him. All yards should be well lighted so as to give a good volume of light for all operations.

The clerk at the hump or the car cutter should keep a list of all cuts ridden by each car dropper. This record is beneficial in many ways and serves a threefold purpose. First: It discourages any inclination on the part of car droppers to "soldier" as with proper supervision any tendency in that direction is quickly detected and corrective measures taken. Second: A notice posted on the bulletin board at the end of the month showing the number of cuts ridden by each car dropper will incite rivalry to attain the top of the list, resulting in greater activity on their part. Third: It is of considerable assistance in placing responsibility for cars damaged during classification. It is possible if car droppers are placed on a piece work basis it might result in quicker handling and at the same time in a greater number of damaged cars, although this fact could only be determined by experiments along that line.

A positive rule should be established and observed in all yards requiring trainmen to report immediately all cases of damage to cars and to call at the yardmaster's office at the close of their tour of duty to give a statement in connection with the same. In cases where they attribute the damage to defective equipment such as slack chain or inoperative brake they should call a car inspector and have him determine at once whether or not the alleged defect exists. Failure to call a car inspector should be considered as an acknowledgment of responsibility and proper discipline imposed. If this rule is strictly observed it will result in a decided decrease in the number of cars damaged. Brakes should always be tested before the cars are classified over the hump and where defects are discovered another car should be added to the draft with the defective brake in order to ride it safely to its proper track. Care should be exercised, however, to see that the additional car is returned to its proper classification as soon as the cars in the draft have been classified.

A list of all cars traveling under refrigeration should be sent to the ice house attendant who should make a prompt inspection of all such cars, keeping a detailed record of the amount of ice found in the bunkers upon arrival and the amount of ice added daily until the cars are finally unloaded by consignee. A similar practice should obtain with cars traveling under ventilation. A record should be kept of the position of ventilators, weather conditions, etc., until the final disposition of the car. A full and complete icing and ventilation record is invaluable in contesting or defending claims for alleged damage when it can be shown that such damage was not due to lack of protection given by representatives of the railroad company. A complete seal record should be taken of all inbound loaded cars. In the case of inbound cars it is well to have the conductor accompany the seal clerk around his train in order to check or explain any discrepancy in their respective seal records. This practice has a tendency to create greater watchfulness on the part of conductors while trains are in their possession enroute over the road.

The shifting of cars to and from team tracks, stations, warehouses, piers, docks, etc., should be controlled by the issuance of drill orders prepared by the agent or his representative. All drill orders should be numbered consecutively and a receipt obtained from the assistant yard master or conductor to whom delivered, who places the time he receives it on the back of the order and also the time he completes the work or makes a notation explaining his failure to do so. These drill orders should be sent to the office of the yardmaster or trainmaster at the close of each tour of duty and carefully examined. They will show in detail all the internal shifting performed and call immediate attention to any work left undone.

The interchange of cars with foreign lines should be conducted according to a prescribed schedule. The sending of shifting engines for work on connecting lines should be discouraged or reduced to a minimum. Wherever possible interchange tracks should be placed at junction points and where conditions will permit certain tracks should be assigned for the delivery and other tracks for the receipt of cars. Designate certain hours for interchange with the understanding that stock and perishable shipments may be interchanged at all hours, sufficient notice being given in advance of such deliveries. Where it is necessary for shifting engines to work a portion of the time on connecting lines a spirit of reciprocity on the part of interested operating officials together with special reports of detentions and work performed from conductors of the engines while so engaged will permit of close supervision of their movements.

Arrangements for the interchange of cars by float movement depend entirely upon the number of cars so interchanged. Where one or two floatbeds daily will provide for the interchange an arrangement of the schedule is a simple matter, but where the interchange amounts to 35,000 cars or over monthly the closest supervision is necessary over the yard, transfer bridge and float operations to secure the best results. Modern yard facilities are of course necessary for the satisfactory handling of such a volume of business. The most satisfactory results are obtained by having a system of "gridiron" tracks located immediately in front of each transfer bridge, each track having a holding capacity of one float load. There should be sufficient room for at least five tracks in front of each bridge. With this arrangement of tracks floats

can be handled in about one-half the time required when the float yards are located some distance from the transfer bridges. As in all other operations a closing hour should be established between all lines for the receipt and delivery of cars for certain train connections.

MARKET FREIGHT

The schedules for the movement of market freight consisting of vegetables, peaches, berries, etc., are of course so arranged that trains arrive at the terminal in sufficient time to have the cars placed on team tracks or floated to the market pier stations before the opening or closing of the market hour. The greatest despatch is, therefore, necessary in the handling of these trains both in the road movement and after their arrival at the terminal in order to avoid claims for delays. When cars are shipped from the far south the revenue billing forwarded by United States mail will arrive at destination in sufficient time to have the delivery receipts prepared before the arrival of the cars, but when shipments originate within a radius of about 200 miles the billing must accompany the cars as market trains run at such speed as to arrive at destination ahead of the billing when the latter is forwarded by United States mail.

Some scheme must, therefore, be adopted to avoid the delay incident to the preparation of delivery receipts after the arrival of the cars at destination, as while this work is in progress the time for the market to open has arrived, the truckmen and consignees are clamoring for their freight and confusion and chaos reign until the identity of the various shipments have been established with the result that a number of shipments miss the market, shippers and consignees are disgruntled, claims are presented, and life for all becomes a wearisome burden. The remedy is to send messengers out to meet the incoming trains, preferably at the last yard through which they pass for changing engines and crews. Have them secure the billing, prepare delivery receipts and all terminal papers and hasten to the home station by passenger train if there is one available that will arrive at the terminal in advance of the market train, otherwise continue to destination on the market train with all necessary papers prepared. The result is that when the market opens consignees and truckmen know the exact location of their cars and chaos and confusion are changed to system and order, unloading begins at once, the shipments are placed on the market in satisfactory time, all empty cars are removed from the yard, room is made on the team tracks for the early morning merchandise traffic and everybody is in a happy frame of mind.

The floating of market products to a pier station presents a different proposition from that of delivery on team tracks for the reason that the shipments are unloaded from cars on floats to various assigned locations on the pier by longshoremen wherein enters the labor proposition. For reasons of economy the force engaged in unloading should not be too great and for reasons of efficiency should not be too small. This can be regulated to a nicety by a system of advice quickly and accurately transmitted to the terminal and station organizations of the number of cars en route in each train and the probable time of arrival at destination. This advice not only enables the pier agent to bring his force of longshoremen on duty at the proper time, but also enables the terminal operating department to make proper arrangements for the yarding and floating of cars without delay. Under this system it is not an uncommon practice for market trains to run the last one hundred miles of their journey, be yarded, loaded on floats and placed at the pier for unloading within a period of from three to four hours.

OPERATING DETAILS

Every officer in charge of details of operation should perfect a system of advice whereby he will receive accurate reports at least every six hours showing the cars on hand for various destinations; the amount of traffic en route to the terminal; the cars ready and to be available for movement during the next six-hour period; the power, crews and floating equipment available, and the number of cars on hand and en route to and from connecting lines and private terminals. After a close study of such advice he should map out a campaign of action, having in mind always the requirements of the next six-hour period with all branches of the organization working in harmony for the accomplishment of the campaign outlined. A telephone selector system at the terminal will be found invaluable; in fact, indispensable to accomplish this purpose. A selector system should be located at every vital point in the terminal wherever there is located a yardmaster, assistant yardmaster, freight station, float bridges, etc., or where any certain part of the terminal work is concentrated. Make it imperative that a call on the selector shall be answered at once. Many embarrassing and complicated situations are avoided by this quick means of communication and many prompt and important moves accomplished, which would otherwise be impossible. It also offers means for the closest supervision of operations and for complete harmony of action throughout the terminal. While discussing this particular feature of the terminal proposition it might be well to suggest that the official in direct charge of the operating details should not carry the outline of his plans around in his head, but rather keep it in two places clearly outlined, both in his mind and on paper. One does not know at what moment he may be called from the office either for a brief or extended period and his organization should be such that an assistant may be able to take up the reins and see at a glance the work in hand and continue along the plan outlined.

An invaluable adjunct to a trainmaster's organization is a hustling young man to make daily checks of the terminals. The dates of arrival shown in chalk marks on all cars enable him to spot immediately any cars which may show an inclination to form a permanent part of the landscape of the terminal and he takes immediate steps to have them forwarded. He also searches for delayed foreign cars and starts them via the proper home route. He examines all card waybills of loaded cars held in the terminal to ascertain from the time stamped on the back the date of arrival of the cars and any which show a delay are immediately reported for movement. He makes a notation of all his findings, reports the same to the yardmaster and also the trainmaster. When he makes his trip the next day he is careful to see that his findings of the previous day have received proper attention. He is also used as an efficiency inspector and makes a note of any violations of the rules of safety, book of rules and special instructions.

It is at the terminals that the company's representatives come in contact most with the public. Hundreds of inquiries are received daily by letter, telephone and personal call in regard to shipments en route, changing destinations, holding cars for orders, etc. This feature has grown to such magnitude at large terminals that an organization is necessary to handle it satisfactorily. All such inquiries should be referred to a car-tracing clerk in order to centralize and systematize the work. This clerk should be furnished with a system which will enable him to locate messages or other business at once when consignees or others are telephoning for information. Courtesy on the part of this clerk is of course imperative as patrons are not always in a pleasant frame of mind when making inquiries as to delayed cars and tact, judgment and diplomacy are necessary in dealing with them. If an active interest is taken in their troubles and a disposition shown to assist them he is gaining friends and business for the company. Shifting crews and employees at stations are also in constant touch with the public, the former in the shifting operations at various industries and the latter in their dealings with the public at the stations. The conduct and attitude of these employees are a large factor in securing business for the company.

Economy of operation consistent with a proper degree of efficiency is always to be desired. It should not be necessary to await a call for a reduction in expenses before shifting power is curtailed. This should work automatically with the car movement, which should be made a matter of record and advantage taken of any decided reduction in car movement to secure a corresponding reduction in shifting service. With a proper system of reports or advice the opportunities for reductions may be fore-

seen at least 48 hours before being made effective. The labor forces at stations may be similarly regulated where it is of a transient character by the incoming billing indicating the probable tonnage sufficiently in advance of arrival to regulate the force of laborers.

CO-OPERATION

It has been well said that co-operation is like faith: "The substance of things hoped for and the evidence of things unseen." This is one of the greatest contributing elements to the successful operation of a terminal or any other organization. Without it the best of organizations, personnel, equipment and facilities are doomed to failure. It should prevail not only within the terminal organization, but with every interest with which it comes in contact. Where a terminal forms a separate division it is of the utmost importance that a spirit of co-operation should exist between the connecting divisions. Each should be familiar with the troubles of the other and the energies of both centered in the accomplishment of one purpose. Have a frequent consultation and exchange of ideas between the traffic department and operating officials. Make freight solicitors feel that the latch string is hanging on the outside of the door of the trainmaster's office and that considerable is to be gained by both in team work between these two important branches of the household.

HORNE & CRANE'S AUTOMATIC STOP

Horne & Crane, 114 Liberty street, New York City, on September 30, before a large party of railroad officers, gave an exhibition at Cranford Junction, N. J., on the Central of New Jersey, of their automatic train stop, an apparatus which works without requiring physical contact between the roadside and the train-carried elements, and which includes speed control adjustments, by which enginemen can be compelled to graduate their speed from the caution to the stop signal according to any predetermined rate.

The tests were made with Central of New Jersey locomotive No. 528, on a side track; and, because of the impossibility of moving the engine on this track at high speed, the speed control apparatus was adjusted to apply the brakes in case it exceeded a speed of 12 miles an hour. The brakes were applied in satisfactory shape. Running past the brake-applying points at 11½ miles an hour, the stopping apparatus remained unaffected.

The apparatus was described in *The Signal Engineer* in January, 1914. Briefly, it consists, on the locomotive, of a valve in the air brake system, controlled by a dashpot adjusted to cause the opening of the air valve, and the application of the brakes, after a predetermined interval of time following the opening of an electric circuit. This electric circuit is controlled by an electro-magnet carried in a box about 20 in. long, suspended from the right hand equalizer of the front truck, and adjusted so as to be less than an inch above the rail. The condition of the electro-magnet is constantly affected by this nearness to the rail. The magnet box is immediately behind the front wheel, and of the same width as the wheel tread; so that the wheel serves constantly as a guard to prevent the magnet from being damaged or disturbed by obstructions on the track. Normally, the brakes of the train are held off by air pressure, the integrity of which pressure depends on the fact that the steel of the rail attracts the armature of the magnet.

On the ground, the first element is a piece of rail, in the track, right hand side, which is composed in part of manganese, and which, because of this, is practically non-magnetic. It has no appreciable effect on the engine-carried magnet. When the engine truck passes over this rail the magnet is released from the influence of the steel rail and the timing circuit is broken.

The manganese rails are inserted in the track in pairs. At Cranford Junction the second rail of the pair was 123 ft. in advance of the first; and the timing dashpot on the engine was set for a time element of seven seconds. When the engine was run faster than 12 miles an hour, it passed over this distance in less than seven seconds, and the air valve opened, on reaching the second manganese rail, and the brakes were applied. When the speed was below the prescribed rate and the period of seven seconds expired before the second rail was reached the dashpot had restored the circuits so that the brakes were not applied.

To limit the speed to 24 miles an hour the non-magnetic rails (the time element on the engine remaining unchanged) would be placed 246 ft. apart; for 36 miles, 359 ft. To control speed between a distant and a home signal a pair of rails would be installed at the distant signal, with, say, a space of 359 ft. between them; another pair half way between the distant and the home spaced 246 ft., and a third pair close to the home signal spaced close enough together to insure a stop, whatever the speed. For higher speeds the rails can be placed farther apart or the timing dashpot can be made to operate in shorter time.

When the line ahead of the home signal is clear, and the speed of the train is not required to be reduced, the effect of the manganese rail is neutralized by the action of an electro-magnet fixed in a brass box at the side of the rail. In such a case, this electro-magnet, energized by a current controlled by the track relay of the track section to which this brake-applying section appertains, practically puts the track into the same condition, so far as it affects the stopping apparatus, as though the rail were continuous steel.

Since the publication in *The Signal Engineer* the inventors have made some slight changes in the magnet parts. The locomotive magnet formerly comprised a movable core or pole, which was adapted to open the circuit controlling the valves in passing over the manganese rail. The device is now arranged so that the poles and core of the locomotive magnet swing at right angles to the rail.

The track magnets have been simplified and considerable electrical energy is saved by placing them alongside of the head of the rail. In this position a light armature, carried in the locomotive magnet case, is attracted toward them, and this closes a parallel circuit (when the track is clear) so as to prevent the magnet valves from responding to the condition produced by the absence of the ordinary steel rail. The entire device is designed on the "closed circuit" principle, and a failure of electric energy, the breaking of any spring or wire, or a cross on any of the leads, would at once cause an automatic application of the brakes. The proprietors are planning to install manganese sections suitable for maximum speeds up to 90 miles an hour, and when this is done and the necessary adjustments are made, will conduct another test, at a location where much higher speeds can be demonstrated.

RUSSIAN RAILWAY FOR CHINA.—It is reported that the Russian minister at Pekin has received the consent of the Chinese government to the construction by Russian capitalists of a railroad from the island of Sakhalin along the right bank of the Amur river to a point opposite Blagoveshchensk, and thence to Harbin with a branch to Tsitsihar.

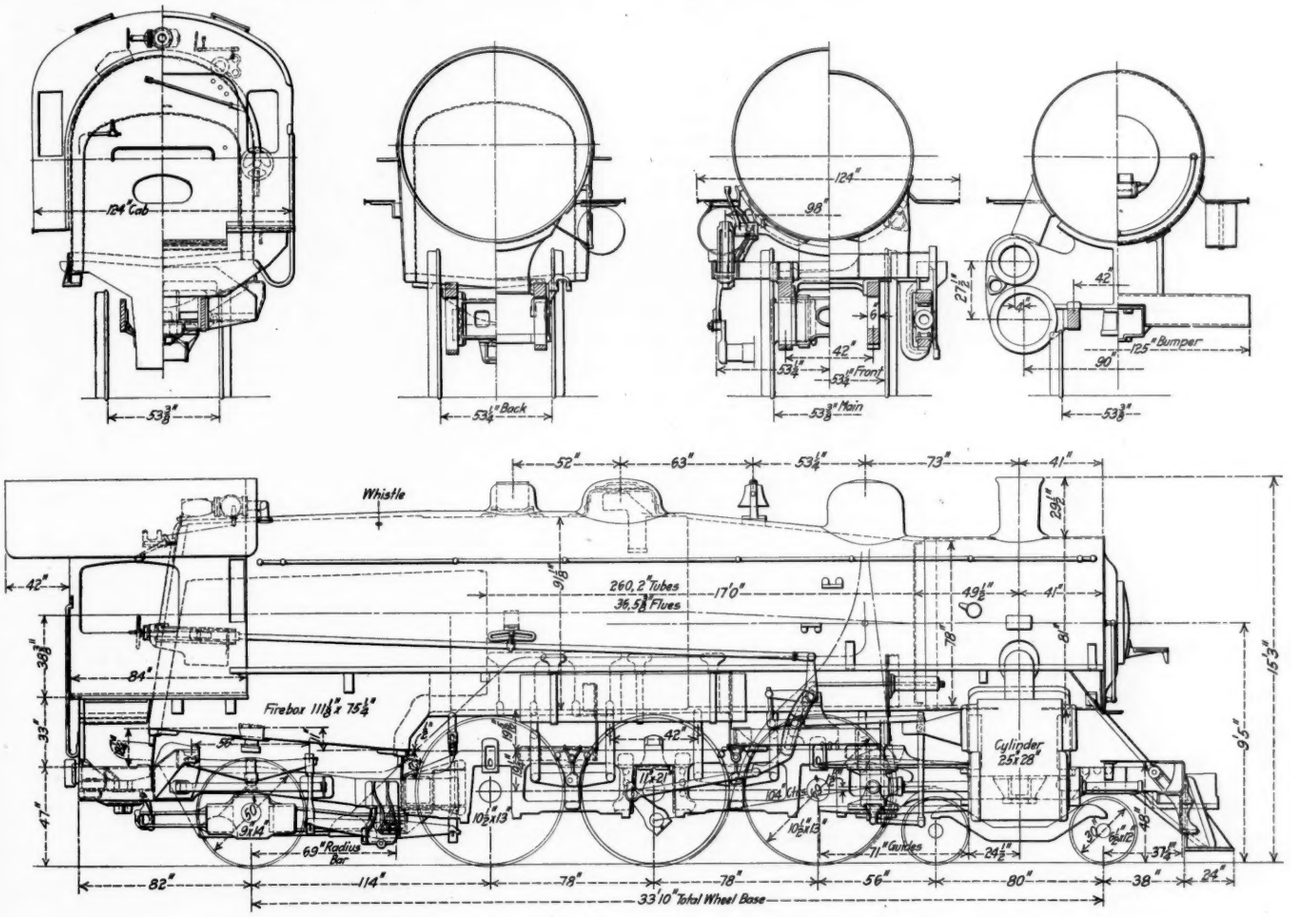
RUSSIAN RAILWAY TIES.—Before the war ties in Russia cost about 71 cents, which is double the price they cost twenty years ago. Say they cost 75 cents each laid in the road, the amount works out at about 9½ cents a year, as they only last, on an average, eight years. Steel ties are not favored, and it is maintained that their use in Germany is not due to their actual merits and that, moreover, they are not used on the Austrian railways. Possibly one reason for the disfavor shown in Russia towards steel ties is that the track is poor and the ties will not, therefore, remain in position. Neither are ferro-concrete ties liked, but if a reliable one could be found they would probably be extensively used, particularly on the lines in Central Asia. About 180 million ties are required a year. No attempts would appear to have been made to lengthen the life of wooden ties by first treating them, although it is computed that one-fifteenth of the known forest wealth of Russia would suffice for its tie requirements.

Lackawanna Pacific Type Freight Locomotive

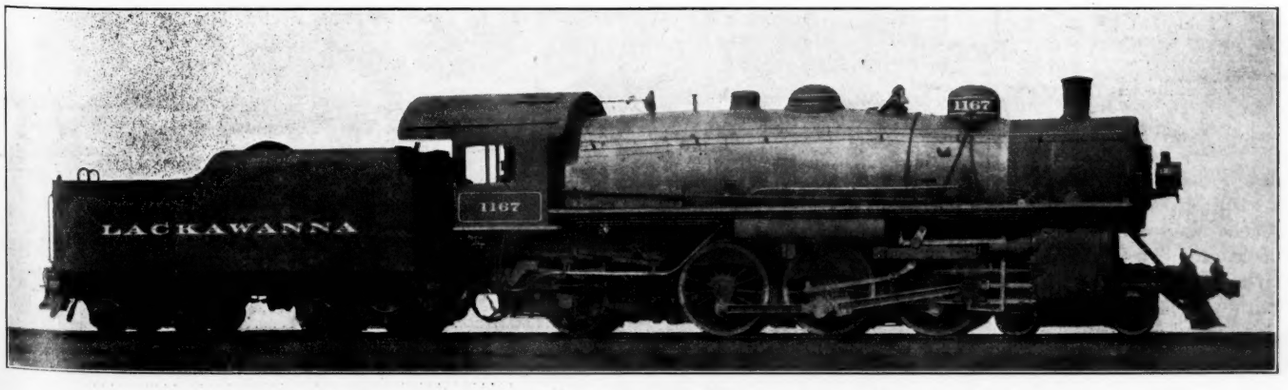
Second Order of These Engines for Freight Service; Cylinders Include New Type of By-pass Drifting Valve

The Delaware, Lackawanna & Western has recently received 14 Pacific type locomotives for fast freight service which were designed under the supervision of H. C. Manchester, superintendent of motive power and equipment, and built by the Lima Locomotive Corporation. This is the second lot of Pacific type locomotives to be placed in freight service by the Lackawanna. The original locomotives which have been in service for about one year, were described in the *Daily Railway Age Gazette*, June 14, 1913. They have proven very satisfactory for this service and the same general design has been followed in the new engines.

The principal change in the new engines is the introduction of a 36-in. combustion chamber in the boiler with a consequent reduction in the length of tubes from 20 ft. to 17 ft. This change has necessitated the enlargement of the boiler at its greatest diameter and has slightly increased the weight with a decrease in total evaporative heating surface of 432 sq. ft. The superheater heating surface has been increased, however, and



Elevation and Sections of Delaware, Lackawanna & Western Fast Freight Locomotive



Delaware, Lackawanna & Western Pacific Type Locomotive for Fast Freight Service

the total equivalent heating surface is only 234 sq. ft., or a little over 4 per cent less than that of the former engines. The better distribution of the heating surface should benefit the steaming qualities and add slightly to the locomotives' hauling capacity in the service for which they are designed.

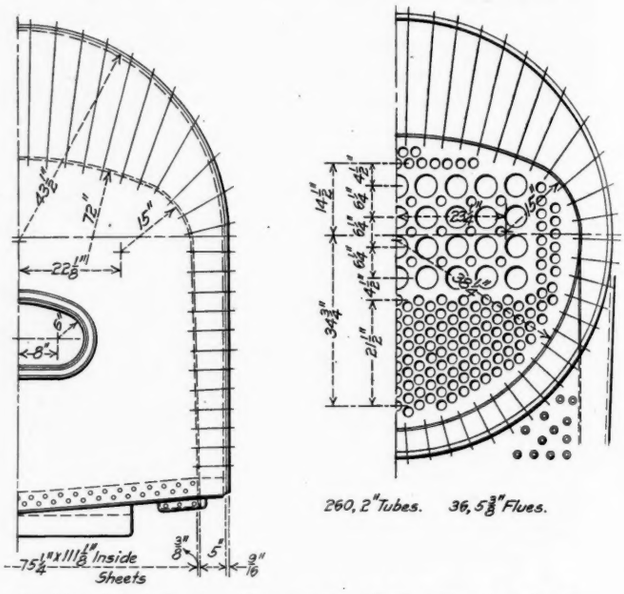
The boilers are provided with auxiliary manhole domes. These offer a clear opening 16 in. in diameter so that the boiler may be entered and inspected without the removal of the throttle valve from the main dome. The cab turret is a special form of the single manifold type, so arranged that it can be removed for repairs with the full steam pressure on the boiler.

The cylinders are provided with the Lackawanna standard by-pass drifting valve arrangement recently developed and patented by H. C. Manchester, superintendent of motive power and equipment, and S. S. Riegel, mechanical engineer. It provides for the automatic delivery of steam directly from the boiler into the cylinders during periods of coasting, and also performs the ordinary function of a by-pass valve. The valves are of the piston type operating in chambers opening from the cylinder ports, the two ports on each cylinder being connected by a 5 in. wrought iron pipe, which serves as a by-pass. A sectional view through one of the valves and its chamber, slightly distorted for the sake of clearness, is shown in one of the engravings. Live steam from a globe valve in the cab is conducted through a 13/16 in. copper pipe into the annular chamber surrounding the valve. When the throttle is open and the engine is using steam, steam chest pressure is communicated to the chamber at the outer end of the valve through a pipe under the cylinder jacket leading from the live steam cavity at the center of the valve chamber. This pressure, acting against the end of the valve, holds it in the closed position as shown while the engine is working. As soon as the throttle is closed, however, the pressure is removed and the live steam pressure, acting on an effective area equal to the difference in the area of the smaller and larger pistons, forces the valve to the open position. In opening, the packing rings on the smaller or inner piston travel over grooves leading from the annular chamber, thus admitting live steam directly into the entire cylinder space in sufficient quantities to maintain the temperature of the cylinder walls and to break up the vacuum. This prevents an inrush of air with the attendant carbonization of lubricating oil and damage to the cylinder walls. Engines equipped with this device are very free coasters and its use is claimed to have effected a considerable increase in the life of both cylinder and piston rod packing.

The main driving boxes used on these locomotives are 21 in. in length. The main pedestals are increased in width by means of steel castings between the frames. The engines are provided with the Woodard self-centering engine truck and the Miner friction draft gear has been included on the front end. Economy type grate shaker brackets, which insure against dropping of fuel through the deck, and low type tank wells are also used. The valves for these wells are operated from the ground and when closed permit blowing the water in the hose back into the tank, thus providing against freezing. Vanadium cast steel has been used in the frames. The principal dimensions and weights are given in the following table:

General Data

Gage	4 ft. 8½ in.
Service	Freight

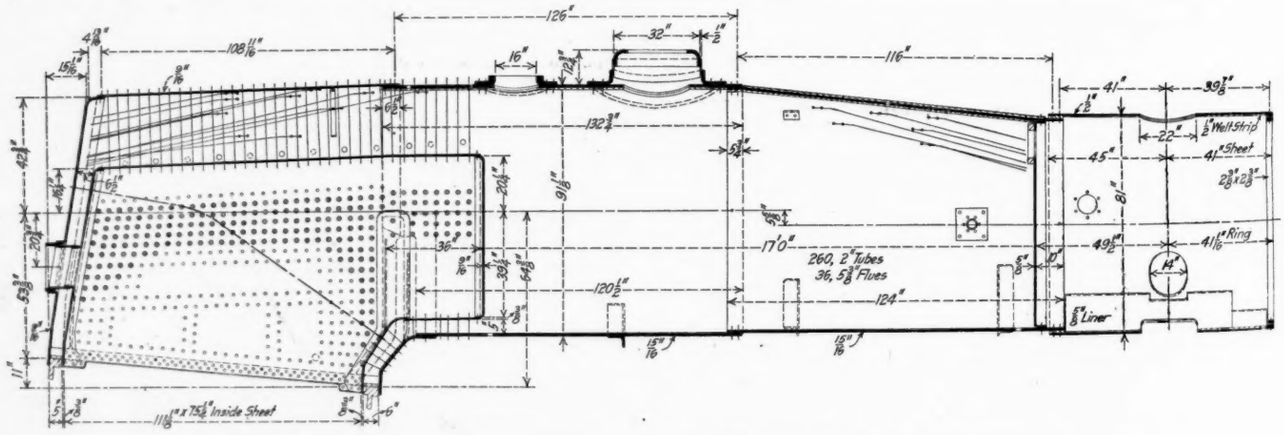


Backhead and Section Through the Boiler, Showing the Rear Tube Sheet

Fuel	Bit. coal
Tractive effort	43,200 lb.
Weight in working order	291,000 lb.
Weight on drivers	188,000 lb.
Weight of engine and tender in working order	456,500 lb.
Wheel base, driving	13 ft. 0 in.
Wheel base, total	33 ft. 10 in.
Wheel base, engine and tender	66 ft. 4 in.

Ratios

Weight on drivers ÷ tractive effort	4.35
Total weight ÷ tractive effort	6.74
Tractive effort × diam. drivers ÷ total equivalent heating surface*	589.3



Boiler for the Delaware, Lackawanna & Western Fast Freight Pacific Type Locomotive

Total equivalent heating surface* ÷ grate area	87.2
Weight on drivers ÷ total equivalent heating surface*	37.2
Total weight ÷ total equivalent heating surface*	57.5
Volume of both cylinders	15.9 cu. ft.
Total equivalent heating surface* ÷ vol. cylinders	318.0
Grate area ÷ vol. cylinders	3.7

Cylinders

Kind	Simple
Diameter and stroke	25 in. by 28 in.

Valves

Kind	Piston
Greatest travel	6½ in.
Outside lap	1 1/16 in.

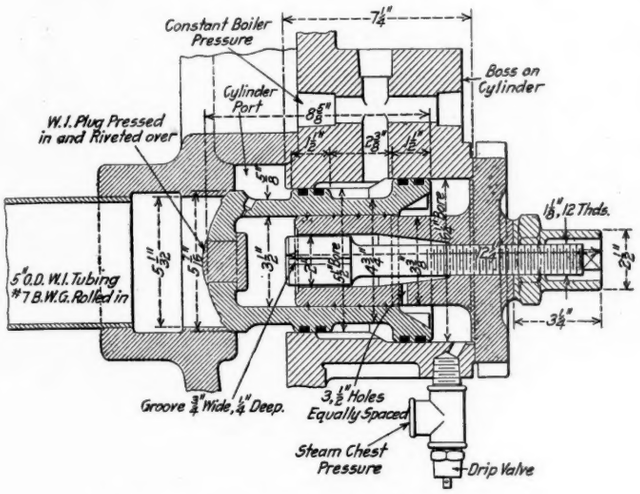
Inside clearance	3/16 in.
Lead in full gear	3/16 in.

Wheels

Driving, diameter over tires	69 in.
Driving journals, main, diameter and length	11 in. by 21 in.
Driving journals, others, diameter and length	10½ in. by 13 in.
Engine truck wheels, diameter	30 in.
Engine truck journals	6½ in. by 12 in.
Trailing truck wheels, diameter	50 in.
Trailing truck journals	9 in. by 14 in.

Boiler

Style	E. W. T.
Working pressure	200 lb.
Outside diameter of first ring	78 in.
Firebox, length and width	111⅛ in. by 75¼ in.
Tubes, number and outside diameter	265—2 in.
Flues, number and outside diameter	36—5⅜ in.
Tubes, length	17 ft. 0 in.



Section Through By-Pass Drifting Valve Chamber

Heating surface, tubes and flues	3,279 sq. ft.
Heating surface, firebox and combustion chamber	279 sq. ft.
Heating surface, total	3,558 sq. ft.
Superheater heating surface	about 1,000 sq. ft.
Total equivalent heating surface*	5,058 sq. ft.
Grate area	58 sq. ft.

Tender

Tank	Water bottom
Weight	165,500 lb.
Water capacity	9,000 gal.
Coal capacity	10 tons

*Total equivalent heating surface = total evaporating heating surface + 1.5 times the superheater heating surface.

INCREASE IN MILEAGE BOOK RATES FAVORED

Although, as mentioned in last week's issue, the secretary of the Illinois Commercial Men's Association has sent out circular letters to 100,000 traveling salesmen, asking them to fill out a blank form of protest to the Interstate Commerce Commission against the increase in rates for mileage books on the eastern railways, it is apparent that there is some division of opinion on this subject among the members of the association. Lorenzo Norvell, manager of Fairbanks, Morse & Co., at St. Louis, Mo., has addressed a letter to R. A. Cavenaugh, secretary and treasurer of the Illinois Commercial Men's Association, in which as a member of the organization he enters an emphatic protest against the attempt to incite the members of the organization to take up this movement. Mr. Norvell concludes his letter by saying that unless he is accorded the same privilege that the secretary has used in sending out his letter broadcast, by having circular copies of it printed and sent to each member, he will solicit the aid of the press of the country, having reason to believe that it will willingly join in a protest against the movement. He states that he will also send copies of his letter to the managers of many large firms with which he is acquainted, and solicit their assistance, which he feels will be willingly given.

Mr. Norvell says in his letter:

"I deny that there is any disposition on the part of railway officials to antagonize traveling men as a class. I further deny that their attempt to secure increased rates is in any way striking at the bread and butter of traveling salesmen. On the contrary, they are making a last effort to conserve their properties and I share the opinion of a great many business men that the men who are now handling our great railroad properties are to be commended for their magnificent courage against such overwhelming odds and that they should receive the united support of commercial houses and traveling salesmen throughout the country. They are our natural allies, and their mission is just as important as that of the traveling salesmen.

"Our great need today is service. We want trains in plenty to enable traveling men to get over their territory quickly without loss of time. We also want our freight handled promptly and when we get service we should be fair enough to pay for it. You have stated that the railroads have not increased their mileage rates for a period of 30 years, and I submit to you in all fairness that it is time for an increase, as there is no comparison between the service of the present day and 30 years ago. You have stated that there will be no objection to raising passenger rates on single-trip tickets. Why look at the question from your side only? As a matter of fact, I cannot see why traveling salesmen should get a better rate on transportation than individuals, particularly when in nine cases out of ten the firm for whom the man is traveling pays the bill.

"We are now facing a very grave condition—not a theory—and if there ever was a time for the doctrine of 'live and let live,' it is before us now, as the railroads throughout the country are losing money every day they operate, regardless of their utmost efforts to economize in every direction.

"You propose to ask the Interstate Commerce Commission to fix a price on a service without any reference whatever to their gross income and expenses, and yet there isn't a man in our entire organization that would consider it anything but an outrage if the same doctrine were applied to any commercial institution in this country.

"There has been entirely too much agitation against railroads and the cause for this agitation which originated long ago has passed, but the railroads are still reaping the results, and I submit to you that any traveling salesman in this organization knows of many railroad towns where the shop forces and maintenance forces have been cut down to such an extent as to seriously impair the business of the merchants with whom that salesman does business in that town.

"According to your theory, you would cut down their forces and keep the salaries of their employees at a minimum in order to put bread and butter into the mouths of traveling salesmen, and I submit that you would be fooling yourself all the time because the salesman's welfare is indissolubly connected with that of the railroad man.

"You would appeal to the Interstate Commerce Commission for relief in this matter, and yet you have lost sight of the fact that 30 years ago we did not have an Interstate Commerce Commission and that the existence of the Interstate Commerce Commission at this time has made it necessary for the railroads to spend hundreds of thousands of dollars, in fact millions, for the purpose of keeping records in order that the commission may supervise their business methods for the benefit of the people of the United States.

"I also desire to call your attention to the fact that railroad bonds are largely held by our leading insurance companies and a depreciation of their value is a blow at the integrity of the insurance policies held throughout the country.

"It is my understanding that the Illinois Commercial Men's Association was organized for the purpose of conducting a mutual accident insurance business among its members. You should, therefore, be debarred from making any such campaign at the probable expense of leading insurance companies in which nearly all of your members have policies."

General News Department

The Boylston street subway, in Boston, which has been under construction for the past two years, was opened for traffic October 3. This subway is about 1½ miles long, extending from the north-and-south subway near the Public Garden westward toward Brookline.

The Delaware, Lackawanna & Western has just finished, at Hoboken, N. J., as a part of its wireless telegraph equipment, a steel tower, 402 ft. high. The Hoboken office now has a five kilowatt Marconi apparatus, and messages have been sent from Hoboken to Buffalo, 410 miles. The wave length is 2,250 meters.

The president of the Old Time Telegraphers' and Historical Association for the present year is Andrew Carnegie; and the annual meeting next year is to be held in New York City. No meeting was held this year, the decision to omit it having been due to the disturbances caused by the European war, and the election of officers was by the executive committee. The secretary of the association is F. J. Scherrer, 30 Church street, New York City.

Members of the Switchmen's Union of North America have filed suit at Dallas, Tex., against the Missouri, Kansas & Texas, the Texas & Pacific, the Houston & Texas Central, the International & Great Northern, the St. Louis Southwestern, the Gulf, Colorado & Santa Fe, and the Brotherhood of Railroad Trainmen, to cancel contracts by which the roads are said to employ only members of the trainmen's union to the exclusion of members of the Switchmen's Union.

The management of the Pennsylvania Railroad has begun a campaign to keep passengers from standing on the platforms of moving passenger cars. Letters have been sent to the various industries around Pittsburgh, requesting them to post notices in their factories warning their employees (hundreds of whom ride on Pennsylvania trains daily, going to and from their work) of the danger of standing on the platforms of moving cars; and a general notice to passenger trainmen has been posted on the bulletin boards calling for a concerted effort on the part of trainmen to keep passengers from riding on platforms or steps of cars between or approaching stations.

C. H. Hudson, a passenger conductor on the Georgia & Florida, running between Augusta and Valdosta, proposes that railways and street railways aid the cotton growers, in their financial distress, caused by the cessation of the European demands for cotton, by ordering the general use of cotton cloth (khaki) for uniform suits for employees. By prompt action a supply of this material could be provided in time for use for summer uniforms in 1915. Mr. Hudson calls attention to the fact that the Buy-a-Bale movement, by which individuals relieve the market by buying and storing cotton, does not afford permanent and final relief; the cotton is likely again to come on the market; whereas his plan would use it up.

Samuel O. Dunn, editor of the *Railway Age Gazette,* addressed the Chicago Engineers' Club at its weekly luncheon in Chicago on October 1, on "Government Ownership of Railways." Charles Evans, commissioner of the Queensland (Australia) government railways, was present, and added a brief, informal discussion. Mr. Evans said he would not care to dispute any of the arguments made against government ownership of railways in the United States, but that the situation was different in his country, where it was necessary for the government to undertake railway construction in order to develop its territory, because the state could not depend on private enterprise to do so. He also remarked that with all the regulating commissions in the United States the American railways have all the government control they can stand without government ownership, and that actual ownership by the government would be "too much of a good thing." He thought the problems were too big and complex for the government to undertake. He added that competition under private ownership had developed a luxuriousness of passenger traffic, both in the United States and in Great Britain, which would not be afforded by government owned railway systems; and that if he were to criticize our railways he would say there are too many millions spent on "brass work and marble halls."

The University of Pittsburgh has arranged to establish an evening school of engineering this fall, giving graduate courses under the direction of Dean Bishop, in which men who are properly prepared and who have received their bachelor of science degree may obtain an engineering degree. Courses will be offered in the valuation of public utilities, and mechanical, civil, electrical, sanitary, mechanical railway and concrete engineering. The faculty will include Paul N. Lincoln, professor of electrical engineering at the university and president of the American Institute of Electrical Engineers; Louis E. Endsley, professor of mechanical railway engineering at the university; D. F. Crawford, general superintendent of motive power, Pennsylvania Lines West, who will co-operate with Professor Endsley in the work of mechanical engineering; Prof. R. T. Stewart, head of the department of mechanical engineering at the university; Prof. J. Hammond Smith, head of the department of civil engineering, and Professor Morris Knowles, director of the department of sanitary engineering, who with Prof. G. W. Case and William F. Moorehead will give the course in the valuation of public utilities.

The Firemen's Comprehensive Program

At a meeting of the Illinois legislative committee of the Brotherhood of Locomotive Firemen and Enginemen at Springfield last week, it was decided to advocate a change in the federal hours of service law, to reduce the maximum hours of trainmen from 16 to 10 hours a day. Other legislation is to be advocated which would provide for a limitation on the number of cars in a train, a uniform code of signals, giving trainmen a right to vote when they are away from home on election day, standardization of overhead and side clearances, and giving the Interstate Commerce Commission power to specify the type of steel cars to be used in passenger trains.

Armspear Lenses

The Armspear Manufacturing Company, New York City, has published a record of tests of lenses of signal lamps showing the superiority of the Armspear spheroidal lens, over the ordinary signal lenses, when the measurement is taken at any point other than on the axis of the lens. For example, at a point on the axis 575 ft. from the light the stellar magnitude of an inverted lens is 5.75; and of the spheroidal lens 5.00. At a point 2,260 ft. from the light and 2¾ deg. from the axis, both lenses measure 3.00; in other words, the ordinary lens has lost 48 per cent, while the Armspear has lost only 40 per cent. At 900 ft. from the light and 15 deg. from the axis, the inverted lens measures 0.50 and the spheroidal 4.25. At 1,890 ft. from the lamp and 15 deg. from the axis the light from the inverted lens is entirely lost, while the Armspear at that point measures 3.00. These tests were made on a clear night (August 31) with the moon seven-eighths full.

A Safety-First Motion-Picture Play

Marcus A. Dow, general safety agent of the New York Central Lines, has recently had produced a rather remarkable motion-picture play entitled "Steve Hill's Awakening" for use in connection with the safety-first work now being conducted by the Central. The picture, a brief description of which is given below, is one of the first produced under railroad auspices for this purpose, telling a story of human interest with its principal parts played by professional actors. The scheme was carried out with the idea of departing from stereotyped methods, Mr. Dow, who some time ago introduced the safety exhibit car on the New York Central Lines (*Railway Age Gazette,* August 8, 1913, p. 228), having seen the necessity of introducing a feature

OPERATING REVENUES, EXPENSES AND TAXES, AND RATIO OF THE VARIOUS OPERATING EXPENSE ACCOUNTS TO TOTAL OPERATING REVENUES
FISCAL YEARS ENDING JUNE 30, 1913 AND 1914

(Prepared by the Bureau of Railway Economics from returns to the Interstate Commerce Commission of railways having annual operating revenues above $1,000,000)

Road	Operating revenues		Operating expenses		Net operating revenue		Taxes		Ratio of the various operating expense accounts to total operating revenues—per cent													
									Maintenance of way and structures		Maintenance of equipment		Traffic		Transportation		General		Total operating expenses		Taxes	
	Amount 1914	Per cent of inc. over 1913	Amount 1914	Per cent of inc. over 1913	Amount 1914	Per cent of inc. over 1913	Amount 1914	Per cent of inc. over 1913	1914	1913	1914	1913	1914	1913	1914	1913	1914	1913	1914	1913	1914	1913
EASTERN DISTRICT:																						
Ann Arbor	$2,096,170	1.1	$1,455,001	1.4	$641,169	0.6	$164,050	0.5	11.8	14.2	12.6	12.5	3.0	2.4	37.8	35.9	4.2	4.2	69.4	69.2	7.8	7.9
Atlantic & St. Lawrence	1,657,507	d4.7	1,411,263	d10.0	246,244	44.5	129,736	d14.8	15.8	17.5	15.6	15.0	3.2	3.1	47.4	51.9	3.2	2.7	85.2	90.2	7.8	8.8
Atlantic City	2,362,004	7.1	1,823,712	5.1	538,292	14.4	149,000	34.6	19.0	17.6	7.3	8.2	1.3	1.5	48.9	50.6	0.7	0.7	77.2	78.6	6.3	5.0
Baltimore & Ohio	97,411,441	d4.1	72,054,892	d2.3	25,356,549	d8.7	3,226,466	9.0	12.6	13.8	17.1	18.0	2.2	2.0	39.7	36.7	2.4	2.1	74.0	72.6	3.3	2.9
Baltimore & Ohio Chicago Terminal	1,594,454	d11.1	1,271,433	d9.4	323,021	d17.4	220,965	5.6	11.3	12.8	17.4	15.4	0.5	0.5	46.6	46.4	3.9	3.1	79.7	78.2	13.9	11.7
Bangor & Aroostook	3,795,412	16.7	2,401,960	8.2	1,393,452	34.9	112,606	1.8	13.5	15.2	13.3	12.7	0.8	1.1	32.5	34.4	3.2	4.8	63.3	68.2	3.0	3.4
Belt Ry. Co. of Chicago	3,064,677	d4.0	1,877,279	d7.6	1,187,398	2.2	121,534	21.3	9.5	6.1	10.1	13.5	0.3	0.2	38.9	41.7	2.5	2.1	61.3	63.6	4.0	3.1
Bessemer & Lake Erie	8,488,073	d5.8	5,796,187	13.4	2,691,886	d31.0	336,000	14.7	10.5	10.9	28.4	19.0	1.4	1.2	26.1	24.1	1.9	1.5	68.3	56.7	4.0	3.3
Boston & Maine	47,413,906	d2.3	38,296,679	0.5	9,117,227	d12.4	2,059,017	1.6	13.8	11.2	16.3	16.0	1.0	0.9	46.8	47.6	2.9	2.8	80.8	78.5	4.3	4.2
Buffalo & Susquehanna R. R. Corp.	1,605,501	d12.7	1,375,759	3.7	229,742	d55.1	19,720	d24.2	19.9	18.5	24.0	14.6	1.1	0.8	35.6	34.4	5.1	3.9	85.7	72.2	1.2	1.4
Buffalo, Rochester & Pittsburgh	10,709,535	d2.2	7,938,063	3.6	2,771,472	d15.5	234,000	8.3	13.5	14.2	20.7	19.7	1.4	1.3	36.2	32.7	2.3	2.1	74.1	70.0	2.2	2.0
Canadian Pacific (Lines in Maine)	1,389,305	d5.9	1,384,587	0.9	4,718	d95.5	139,450	12.4	26.6	24.0	16.3	15.0	5.9	5.1	46.5	44.8	4.4	4.1	99.7	93.0	10.0	8.4
Central New England	3,764,255	1.5	2,515,403	28.0	1,248,852	d28.4	126,804	1.8	15.6	15.0	12.4	9.5	0.4	0.4	37.0	26.8	1.4	1.3	66.8	53.0	3.4	3.4
Central Railroad Co. of New Jersey	27,372,315	d3.6	17,783,045	8.4	9,589,270	d20.1	1,339,454	d12.0	12.1	9.8	17.2	14.9	1.4	1.3	32.2	29.9	2.1	1.9	65.0	57.8	4.9	5.4
Central Vermont	4,140,289	d1.4	3,657,577	8.7	482,712	d42.1	192,475	8.7	14.6	11.0	19.0	16.7	2.5	2.4	49.8	47.8	2.4	2.3	88.3	80.2	4.6	4.2
Chicago & Eastern Illinois	15,544,286	d4.1	12,969,011	0.7	2,575,275	d22.7	630,500	3.0	14.4	13.3	26.1	22.9	1.9	2.0	38.0	38.3	3.0	3.0	83.4	79.5	4.1	3.8
Chicago & Erie	5,460,145	d0.6	5,751,191	8.0	def. 291,046	d273.7	176,300	5.7	19.9	16.3	24.8	21.5	4.7	4.6	53.0	52.1	2.9	2.5	105.3	97.0	3.2	3.0
Chicago, Indiana & Southern	4,329,897	d1.8	3,751,198	9.4	578,699	d40.8	206,067	5.5	14.1	13.0	30.8	25.4	2.5	2.2	36.3	34.6	2.9	2.6	86.6	77.8	4.8	4.4
Chicago, Indianapolis & Louisville	6,944,005	d0.6	5,184,728	1.6	1,759,277	d6.5	332,990	13.2	15.0	15.3	15.4	14.1	3.3	3.1	38.1	38.0	2.9	2.6	74.7	73.1	4.8	4.2
Chicago, Terre Haute & Southeastern	2,162,058	12.0	1,775,928	18.3	386,130	d9.8	138,000	15.0	14.6	17.2	28.4	20.9	2.0	1.9	32.1	32.9	5.0	4.9	82.1	77.8	6.4	6.2
Cincinnati, Hamilton & Dayton	10,084,217	0.1	9,737,841	20.8	346,376	d82.8	464,609	7.9	23.4	12.3	18.6	18.6	2.5	2.3	49.6	44.5	2.4	2.3	96.5	80.0	4.6	4.3
Cincinnati Northern	1,459,278	3.0	1,437,541	18.2	21,737	d89.2	70,059	6.4	21.8	18.5	26.9	21.0	2.2	2.2	44.6	41.3	3.0	2.8	98.5	85.8	4.8	4.6
Cleveland, Cin., Chicago & St. Louis	36,027,653	d4.1	31,872,040	7.6	4,155,613	d47.6	1,471,668	7.1	14.9	14.2	24.8	19.9	2.5	2.5	43.9	40.2	2.3	2.1	88.4	78.9	4.1	3.7
Cumberland Valley	3,511,897	d0.3	2,400,808	1.9	1,111,089	d4.7	72,796	2.2	18.6	17.6	11.6	11.9	1.7	1.5	33.5	33.1	3.0	2.8	68.4	66.9	2.1	2.0
Delaware & Hudson	23,090,060	d3.8	15,309,780	4.5	7,780,280	d16.7	660,607	9.4	7.6	7.8	15.8	15.0	1.4	1.2	38.0	34.2	3.5	2.9	66.3	61.1	2.9	2.5
Delaware, Lackawanna & Western	39,819,284	d1.7	25,621,409	1.3	14,197,875	d6.8	2,100,000	20.1	13.1	12.4	15.5	15.2	2.2	2.1	31.4	30.7	2.1	2.0	64.3	62.4	5.3	4.3
Detroit & Mackinac	1,210,333	d2.6	852,880	0.7	357,453	d9.6	105,904	2.3	12.2	13.4	16.2	14.1	2.4	2.2	37.0	35.7	2.7	2.8	70.5	68.2	8.8	8.3
Detroit & Toledo Shore Line	1,544,330	14.0	768,136	20.1	776,194	8.6	66,976	0.3	9.4	10.7	8.2	5.6	1.3	1.1	28.7	27.7	2.1	2.1	49.7	47.2	4.3	4.9
Detroit, Grand Haven & Milwaukee	2,558,130	1.7	2,271,261	d5.6	286,869	158.7	40,272	d7.9	13.3	21.9	15.2	14.5	3.2	3.3	54.4	53.3	2.7	2.6	88.8	95.6	1.6	1.7
Detroit, Toledo & Ironton	1,542,734	d7.8	2,376,833	28.7	def. 834,099	id380.6	75,739	10.0	46.7	25.2	37.3	28.0	2.1	1.9	63.2	51.4	4.8	3.9	154.1	110.4	4.9	4.1
Elgin, Joliet & Eastern	11,252,392	d15.7	7,755,238	3.2	3,497,154	d40.1	426,863	5.4	15.1	10.6	21.3	15.4	0.6	0.5	29.6	28.2	2.3	1.6	68.9	56.3	3.8	3.0
Erie	52,344,668	d3.0	37,084,156	4.8	15,260,512	d17.9	1,689,427	d4.5	11.3	10.0	19.0	17.8	2.4	2.2	35.6	33.5	2.5	2.1	70.8	65.6	3.2	3.3
Grand Rapids & Indiana	5,538,484	0.4	4,426,102	1.3	1,112,382	d3.2	289,710	1.6	13.6	14.1	16.3	16.7	2.6	2.5	43.9	42.5	3.5	3.4	79.9	79.2	5.2	5.2
Grand Trunk Western	7,184,559	d3.9	6,038,874	6.7	1,145,685	d37.0	431,032	13.9	12.4	11.1	17.8	14.4	3.8	3.5	46.8	44.1	3.2	2.6	84.0	75.7	6.0	5.1
Hocking Valley	7,021,145	d10.2	4,803,746	d3.6	2,217,399	d21.8	451,136	d5.6	9.5	10.0	20.8	20.4	1.5	1.4	34.1	29.8	2.5	2.2	68.4	63.8	6.4	6.1
Indiana Harbor Belt	3,284,687	1.6	2,533,676	9.4	751,011	d18.1	75,541	13.5	13.6	12.0	12.4	12.0	1.0	1.0	47.2	44.0	2.9	2.6	77.1	71.6	2.3	2.1
Lake Erie & Western	5,743,649	d5.3	4,728,228	2.1	1,015,421	d29.0	267,640	8.2	15.4	14.8	20.3	18.8	2.9	2.3	41.2	38.2	2.5	2.3	82.3	76.4	4.7	4.1
Lake Shore & Michigan Southern	53,344,156	d8.5	40,817,260	5.9	12,526,896	d36.5	2,409,212	31.6	12.8	12.3	23.6	17.8	1.9	1.7	36.0	32.5	2.2	1.8	76.5	66.1	4.5	3.1
Lehigh & Hudson River	1,774,791	d4.0	1,293,130	4.1	481,661	d20.6	49,768	3.5	14.4	12.9	15.1	14.2	1.0	0.9	39.0	36.4	3.4	2.8	72.9	67.2	2.8	2.6
Lehigh & New England	2,255,800	25.8	1,257,280	30.6	998,520	20.2	43,126	45.2	13.0	13.9	13.4	11.4	1.0	0.9	26.0	25.0	2.3	2.5	55.7	53.7	1.9	1.7
Lehigh Valley	39,783,564	d7.6	27,609,162	d5.1	12,174,402	d12.6	1,549,895	7.1	11.5	13.2	17.6	17.6	2.5	2.3	35.4	32.5	2.4	2.0	69.4	67.6	3.9	3.4
Long Island	12,625,291	8.4	9,043,773	8.2	3,581,518	9.1	774,733	8.2	12.4	13.4	11.4	11.3	1.4	1.5	43.7	43.0	2.7	2.6	71.6	71.8	6.1	6.2
Maine Central	11,685,969	3.1	8,487,420	2.9	3,198,549	3.7	611,496	11.5	14.3	15.8	15.4	14.5	1.2	1.2	38.6	38.2	3.1	3.1	72.6	72.8	5.2	4.8
Michigan Central	34,268,454	d3.1	26,868,682	7.9	7,399,772	d29.3	1,494,814	9.4	13.3	11.8	17.5	14.6	2.2	2.3	43.4	39.9	2.0	1.8	78.4	70.4	4.4	3.9
Monongahela	1,426,965	d15.2	594,313	d11.9	832,652	d17.4	27,200	d10.7	12.7	12.6	5.8	6.8	0.3	0.2	21.0	19.0	1.8	1.5	41.6	40.1	1.9	1.8
Monongahela Connecting	964,736	d13.2	785,898	d7.1	178,838	d32.6	31,288	32.6	10.7	9.0	17.5	16.4	0.4	0.3	49.5	46.8	3.4	3.6	81.5	76.1	3.2	2.1
New York Central & Hudson River	112,705,211	d2.1	85,718,343	1.9	26,986,868	d12.9	6,206,869	d1.3	14.3	13.7	19.9	18.6	1.9	1.9	37.4	36.4	2.6	2.5	76.1	73.1	5.5	5.5
New York, Chicago & St. Louis	11,757,111	d6.9	9,678,371	3.9	2,078,740	d37.2	487,602	21.2	13.0	10.8	15.5	13.8	5.0	4.7	46.8	42.8	2.0	1.7	82.3	73.8	4.1	3.2
New York, New Haven & Hartford	66,617,693	d2.9	48,515,350	2.7	18,102,343	d15.4	3,568,219	d3.9	13.2	11.5	15.6	14.0	0.8	0.9	40.3	39.6	2.9	2.8	72.8	68.8	5.4	5.4
New York, Ontario & Western	9,040,812	d4.4	6,692,924	3.0	2,347,888	d20.6	238,562	3.2	14.1	12.6	17.3	15.9	1.4	1.4	39.0	36.7	2.2	2.1	74.0	68.7	2.6	2.4
New York, Philadelphia & Norfolk	3,812,826	0.8	3,100,747	9.1	712,079	d24.2	105,550	9.0	8.8	8.0	21.1	17.7	1.5	1.3	45.5	44.1	4.4	4.1	81.3	75.2	2.8	2.6
New York, Susquehanna & Western	2,978,174	1.8	2,045,150	3.2	933,024	d1.3	149,331	d12.9	11.0	10.8	12.5	11.9	0.9	0.8	41.9	42.0	2.4	2.2	68.7	67.7	5.0	5.9
Northern Central	13,124,536	d1.6	11,695,071	2.9	1,429,465	d27.3	485,485	d2.4	13.0	12.6	22.5	20.9	1.5	1.5	49.5	47.8	2.6	2.5	89.1	85.3	3.7	3.7
Pennsylvania Lines—East	178,963,562	d1.6	134,049,848	0.2	44,913,714	d6.6	7,352,503	0.6	13.2	13.0	20.6	21.1	1.4	1.3	37.2	35.8	2.5	2.4	74.9	73.6	4.1	4.0
Pennsylvania Lines—West	60,779,683	d8.7	45,708,160	d7.3	15,071,523	d12.7	3,284,866	12.0	14.0	16.7	18.9	18.5	1.7	1.5	38.0	35.5	2.6	1.9	75.2	74.1	5.4	4.4
Pere Marquette	16,431,939	d5.6	17,426,123	25.3	def. 994,184	d128.4	643,168	15.8	18.0	16.9	38.2	17.2	2.5	2.3	44.1	41.1	3.2	2.4	106.0	79.9	3.9	3.2
Philadelphia & Reading	47,123,370	d6.8	31,793,209	4.1	15,330,161	d23.4	1,267,503	d2.5	11.3	9.3	18.5	16.7	1.1	1.0	34.9	32.0	1.7	1.4	67.5	60.4	2.7	2.6
Philadelphia, Baltimore & Washington	20,656,989	d2.1	17,109,807	0.2	3,547,182	d12.0	656,326	1.9	15.5	16.2	18.7	18.4	1.8	1.7	44.1	42.0	2.7	2.6	82.8	80.9	3.2	3.1
Pittsburgh & Lake Erie	17,622,031	d12.1	10,898,827	9.2	6,723,204	d33.2	689,886	43.7	10.6	9.7	22.2	15.3	1.1	0.8	25.9	22.4	2.0	1.6	61.8	49.8	3.9	2.4
Pittsburgh, Cin., Chicago & St. Louis	42,096,662	d5.4	33,201,786	d5.1	8,894,876	d6.7	1,906,195	13.1	14.6	17.2	20.3	20.3	2.1	1.9	39.4	37.2	2.5	2.0	78.9	78.6	4.5	3.8
Pittsburg, Shawmut & Northern	2,099,974	4.8	1,779,947	18.1	320,027	d35.5	19,404	1.5	17.9	17.2	27.1	22.5	1.0	0.7	36.0	32.3	2.8	2.5	84.8	75.2	0.9	1.0
Port Reading	1,335,956	d16.8	625,390	11.5	710,566	d32.0	174,000	43.2	12.7	8.2	0.2	0.2	*	*	33.5	26.4	0.4	0.1	46.8	34.9	13.0	7.6
Rutland	3,714,789	0.2	2,825,317	d2.3	889,472	9.0	207,080	13.9	11.8	12.4	18.4	20.7	3.0	2.7	40.7	40.0	2.2	2.2	76.1	78.0	5.6	4.9

d Decrease. def. Deficit. id Increase deficit. *Less than one tenth of one per cent.

OPERATING REVENUES, EXPENSES AND TAXES, AND RATIO OF THE VARIOUS OPERATING EXPENSE ACCOUNTS TO TOTAL OPERATING REVENUES FISCAL YEARS ENDING JUNE 30, 1913 AND 1914—CONTINUED

(Prepared by the Bureau of Railway Economics from returns to the Interstate Commerce Commission of railways having annual operating revenues above $1,000,000)

Road	Operating revenues		Operating expenses		Net operating revenue		Taxes		Ratio of the various operating expense accounts to total operating revenues—per cent													
									Maintenance of way and structures		Maintenance of equipment		Traffic		Transportation		General		Total operating expenses		Taxes	
	Amount 1914	Per cent of inc. over 1913	Amount 1914	Per cent of inc. over 1913	Amount 1914	Per cent of inc. over 1913	Amount 1914	Per cent of inc. over 1913	1914	1913	1914	1913	1914	1913	1914	1913	1914	1913	1914	1913	1914	1913
EASTERN DISTRICT—*Continued:*																						
Toledo & Ohio Central	$5,336,893	d5.9	$4,568,178	12.2	$768,715	d51.9	$256,715	d0.5	18.7	15.0	21.6	18.3	1.8	1.5	41.1	35.0	2.4	2.0	85.6	71.8	4.8	4.5
Toledo, St. Louis & Western	4,588,121	5.8	3,138,146	8.2	1,449,975	1.0	204,836	14.1	10.2	12.5	12.9	13.0	4.4	3.8	38.5	35.1	2.4	2.5	68.4	66.9	4.5	4.1
Ulster & Delaware	1,076,217	d5.4	835,487	1.2	240,730	d22.9	40,129	d2.5	13.1	12.4	13.8	13.8	2.0	1.8	43.8	41.8	4.9	2.8	77.6	72.6	3.7	3.6
Union R. R. Co. of Baltimore	1,633,774	d9.1	271,309	19.5	1,362,465	d13.3	72,162	3.1	10.6	6.5	...	...	0.5	0.7	3.6	3.6	1.9	1.8	16.6	12.6	4.4	3.9
Union R. R. Co. (of Pennsylvania)	4,077,366	d13.4	3,774,092	12.2	303,274	d77.5	99,500	14.7	16.4	9.1	29.4	23.3	*	*	45.5	38.1	1.3	0.9	92.6	71.4	2.4	1.8
Vandalia	11,255,235	0.5	8,842,199	1.5	2,413,036	d3.1	381,865	3.4	12.9	14.6	20.2	20.3	2.8	2.7	40.3	38.1	2.4	2.1	78.6	77.8	3.4	3.3
Wabash	30,022,494	d5.5	24,403,832	d1.2	5,618,662	d20.6	1,044,309	15.3	13.4	13.6	18.8	16.8	3.4	3.2	42.9	41.6	2.8	2.5	81.3	77.7	3.5	2.9
Western Maryland	8,267,737	8.3	7,848,631	30.4	419,106	d74.0	263,205	9.7	19.2	15.2	22.8	16.2	3.4	2.5	46.3	42.9	3.2	2.1	94.9	78.9	3.2	3.1
West Jersey & Seashore	6,397,733	0.7	5,097,876	2.9	1,299,857	d7.0	316,850	12.1	15.8	15.2	15.9	15.6	2.9	2.8	42.6	41.8	2.5	2.6	79.7	78.0	5.0	4.5
Wheeling & Lake Erie	7,637,346	d2.5	5,274,542	d10.4	2,362,804	21.3	365,831	0.9	13.2	16.9	16.7	20.7	1.4	1.2	34.9	33.2	2.9	3.1	69.1	75.1	4.8	4.6
SOUTHERN DISTRICT:																						
Alabama & Vicksburg	1,830,544	d1.7	1,482,657	5.6	347,887	d23.9	97,798	40.6	15.4	15.1	22.7	20.0	2.6	2.3	36.2	34.4	4.1	3.6	81.0	75.4	5.3	3.7
Alabama Great Southern	5,385,308	2.9	4,227,464	10.8	1,157,844	d18.2	189,857	7.8	12.8	12.0	26.1	22.5	3.0	2.9	34.0	33.2	2.5	2.3	78.4	72.9	3.5	3.4
Atlanta & West Point	1,277,668	3.1	962,806	4.8	314,862	d1.6	82,911	2.0	13.8	12.0	21.0	18.5	4.9	5.2	31.4	33.9	4.3	4.6	75.4	74.2	6.5	6.6
Atlanta, Birmingham & Atlantic	3,399,361	4.8	2,766,954	3.4	632,407	11.7	172,042	4.8	15.9	16.3	16.0	16.1	5.0	5.7	40.4	40.2	4.1	4.2	81.4	82.5	5.1	5.1
Atlantic Coast Line	36,832,898	2.0	26,212,088	6.4	10,620,810	d7.5	1,561,159	7.6	13.9	12.9	16.5	15.5	1.8	1.7	35.6	35.5	3.3	2.6	71.1	68.2	4.2	4.0
Birmingham Southern	1,161,830	d9.0	835,856	3.3	325,974	d30.2	25,223	d11.5	16.5	12.3	15.4	12.5	0.5	0.4	35.0	33.1	4.5	5.1	71.9	63.4	2.2	2.2
Carolina, Clinchfield & Ohio	2,520,306	1.6	1,185,828	12.5	1,334,478	d6.5	124,892	25.3	7.1	6.9	13.1	10.5	3.3	3.3	18.9	17.5	4.6	4.3	47.0	42.5	5.0	4.0
Central of Georgia	14,210,743	2.6	10,745,269	4.1	3,465,474	d1.8	631,596	5.5	14.5	14.6	19.7	18.6	3.0	3.0	34.9	34.9	3.5	3.4	75.6	74.5	4.4	4.3
Charleston & Western Carolina	2,095,812	10.5	1,600,467	8.7	495,345	17.0	66,651	5.3	16.7	17.0	16.6	16.6	2.0	2.1	38.1	39.0	3.0	3.0	76.4	77.7	3.2	3.3
Chesapeake & Ohio	36,690,021	4.6	25,653,937	4.9	11,036,084	3.8	1,330,935	d3.3	11.3	12.4	21.0	20.7	1.8	1.9	33.2	32.4	2.7	2.3	70.0	69.7	3.6	3.9
Cincinnati, New Orleans & Texas Pac.	10,872,690	4.1	7,706,720	9.5	3,165,970	d7.1	368,000	6.5	10.3	10.1	25.3	23.3	2.8	2.7	30.0	29.0	2.5	2.3	70.9	67.4	3.4	3.3
Florida East Coast	5,347,819	6.2	3,653,221	2.8	1,694,598	14.3	239,717	11.7	16.2	15.3	13.8	14.0	1.8	1.8	33.9	36.5	2.6	2.9	68.3	70.5	4.5	4.3
Georgia R. R. Lessee Organization	3,327,444	6.7	2,632,073	d4.6	695,371	94.3	37,261	4.3	10.1	11.4	17.2	19.2	4.3	4.4	44.3	50.3	3.2	3.2	79.1	88.5	1.1	1.1
Georgia Southern & Florida	2,596,549	1.2	2,111,962	3.6	484,587	d8.2	136,220	2.5	12.2	12.2	19.6	18.1	3.9	3.7	40.8	41.0	4.8	4.4	81.3	79.4	5.2	5.2
Gulf & Ship Island	1,995,766	d5.6	1,375,843	0.3	619,923	d16.5	89,918	3.0	13.5	13.6	20.1	17.9	1.8	1.6	28.3	27.0	5.2	4.8	68.9	64.9	4.5	4.1
Illinois Central	65,873,700	2.5	50,775,327	1.5	15,098,373	6.1	3,341,247	15.1	14.0	13.2	22.0	21.7	2.0	2.1	36.7	38.5	2.4	2.4	77.1	77.9	5.1	4.5
Kanawha & Michigan	3,110,148	d5.8	2,219,790	1.6	890,358	d20.3	126,430	19.0	13.6	14.5	22.7	19.4	1.1	0.9	31.3	29.0	2.7	2.4	71.4	66.2	4.1	3.2
Louisville & Nashville	59,682,778	0.4	44,782,708	d*	14,900,070	1.7	2,777,540	57.7	15.6	18.6	20.5	18.9	2.2	2.1	34.6	33.4	2.1	2.4	75.0	75.4	4.7	3.0
Louisville, Henderson & St. Louis	1,371,798	11.4	1,017,076	d1.2	354,722	75.5	45,463	4.9	19.8	24.8	12.8	13.5	4.3	4.3	34.4	38.0	2.8	3.0	74.1	83.6	3.3	3.5
Mobile & Ohio	12,975,431	4.8	10,075,828	11.1	2,899,603	d12.3	416,519	16.2	11.6	11.3	20.7	19.0	3.9	3.7	38.4	36.2	3.1	3.1	77.7	73.3	3.2	2.9
Nashville, Chattanooga & St. Louis	12,778,334	d4.0	10,079,440	d3.4	2,698,894	d6.2	326,557	7.4	15.2	16.0	18.7	17.9	4.0	3.6	38.0	38.3	3.0	2.6	78.9	78.4	2.6	2.3
New Orleans & Northeastern	3,975,710	5.6	3,055,530	6.6	920,180	2.4	182,586	24.1	10.3	10.5	21.9	19.9	3.1	3.2	37.6	38.6	4.0	3.9	76.9	76.1	4.6	3.9
New Orleans Great Northern	1,873,613	4.0	1,129,951	5.3	743,662	2.1	33,583	25.5	13.3	14.7	12.2	9.2	1.6	1.7	28.4	29.5	4.8	4.5	60.3	59.6	1.8	1.5
New Orleans, Mobile & Chicago	2,204,370	d11.5	1,451,157	d17.6	753,213	3.5	85,726	23.4	14.7	15.4	12.6	10.5	2.1	1.8	32.0	39.1	4.4	4.0	65.8	70.8	3.9	2.8
Norfolk & Western	44,470,619	1.7	29,935,842	4.8	14,534,777	d4.2	1,620,000	11.6	11.2	12.7	20.7	19.0	1.7	1.6	31.6	30.2	2.1	1.8	67.3	65.3	3.6	3.3
Norfolk Southern	3,990,020	3.1	2,926,906	17.6	1,063,114	d23.1	125,810	11.4	15.4	13.3	14.1	12.4	1.8	1.7	36.7	31.8	5.4	5.1	73.4	64.3	3.2	2.9
Richmond, Fredericksburg & Potomac	2,977,081	0.3	1,896,123	4.6	1,080,958	d6.5	91,430	85.4	10.7	11.0	11.5	10.9	1.3	1.2	37.3	35.2	2.9	2.7	63.7	61.0	3.1	1.7
Seaboard Air Line	25,291,758	3.1	17,311,395	3.5	7,980,363	2.3	999,000	4.5	12.2	12.3	13.5	13.6	3.1	3.1	36.6	36.3	3.0	2.9	68.4	68.2	3.9	3.9
Southern	69,533,697	1.5	50,571,175	4.8	18,962,522	d6.4	2,679,390	8.0	13.1	13.5	17.2	16.5	3.2	3.1	36.0	34.4	3.2	2.9	72.7	70.4	3.9	3.6
Southern Ry. Co. in Mississippi	1,289,586	17.7	1,040,554	0.7	249,032	294.4	100,864	12.5	22.4	30.0	9.9	10.3	2.3	2.7	42.4	46.6	3.7	4.6	80.7	94.2	7.8	8.2
Tennessee Central	1,707,339	1.4	1,299,249	4.9	408,090	d8.4	53,763	5.5	19.7	20.2	12.0	10.3	4.1	4.0	35.2	34.0	5.1	5.1	76.1	73.6	3.1	3.0
Virginia & Southwestern	1,939,104	7.3	1,370,867	9.3	568,237	2.9	77,410	5.7	13.9	15.5	24.4	22.7	1.3	1.3	28.6	27.5	2.5	2.4	70.7	69.4	4.0	4.1
Virginian	6,340,080	8.5	3,533,221	4.7	2,806,859	13.7	257,195	20.0	13.3	12.7	15.8	18.7	1.0	1.1	23.4	23.5	2.2	1.8	55.7	57.8	4.1	3.7
Washington Southern	1,297,291	d1.6	927,366	3.4	369,925	d12.2	43,962	8.1	13.4	13.1	13.0	12.2	1.3	1.1	40.9	38.9	2.9	2.7	71.5	68.0	3.4	3.1
Western Ry. of Alabama	1,485,849	5.2	1,131,351	7.2	354,498	d0.6	59,673	0.7	17.9	17.4	20.0	18.7	5.1	5.1	28.5	28.7	4.6	4.8	76.1	74.7	4.0	4.2
Yazoo & Mississippi Valley	12,535,499	14.0	8,688,698	0.7	3,846,801	62.0	583,772	25.1	14.1	18.2	14.1	14.9	1.5	1.6	37.0	40.8	2.6	2.9	69.3	78.4	4.7	4.2
WESTERN DISTRICT:																						
Arizona & New Mexico	966,678	d8.8	473,324	d3.1	493,353	d13.7	33,383	d17.1	13.3	14.7	11.9	8.5	1.0	0.9	18.8	18.2	4.0	3.8	49.0	46.1	3.5	3.8
Arizona Eastern	2,797,811	3.9	1,644,853	11.1	1,152,959	d4.8	160,658	38.6	13.4	16.0	12.3	8.7	0.9	1.2	27.6	25.3	4.6	3.8	58.8	55.0	5.7	4.3
Atchison, Topeka & Santa Fe	93,540,268	d4.6	60,172,701	d5.7	33,367,567	d2.6	4,773,441	17.4	13.5	15.5	17.3	16.6	2.3	2.1	28.9	28.8	2.3	2.1	64.3	65.1	5.1	4.1
Bingham & Garfield	1,775,538	56.2	672,685	33.3	1,102,853	74.5	35,456	100.4	7.2	9.8	13.4	12.1	0.6	0.7	15.1	19.2	1.6	2.6	37.9	44.4	2.0	1.6
Butte, Anaconda & Pacific	1,495,391	12.4	1,004,893	d6.5	490,498	91.8	30,756	24.8	11.9	10.1	17.4	19.9	0.5	0.6	34.3	47.4	3.1	2.8	67.2	80.8	2.1	1.9
Chicago & Alton	14,156,232	d7.2	11,987,900	d6.6	2,168,332	d10.2	569,070	16.9	12.8	16.7	25.5	22.2	3.6	3.5	39.6	39.1	3.2	2.6	84.7	84.1	4.0	3.2
Chicago & Northwestern	83,677,051	0.8	59,405,142	2.0	24,271,909	d2.1	4,252,790	18.2	14.5	13.9	14.6	13.9	1.6	1.6	38.2	38.8	2.1	1.9	71.0	70.1	5.1	4.3
Chicago, Burlington & Quincy	92,750,934	d1.7	62,148,398	d1.1	30,602,536	d2.9	4,016,658	12.7	12.9	13.3	17.1	17.1	1.8	1.7	32.6	31.8	2.6	2.7	67.0	66.6	4.3	3.8
Chicago Great Western	14,260,522	1.9	10,831,168	5.6	3,429,354	d8.3	499,082	13.6	14.2	12.1	16.6	14.8	4.1	4.0	38.1	39.5	3.0	2.9	76.0	73.3	3.5	3.1
Chicago Junction	2,029,764	1.3	1,545,013	13.6	484,751	d24.7	28,433	28.0	9.2	10.2	10.2	6.1	0.7	0.7	53.4	48.7	2.6	2.2	76.1	67.9	1.4	1.1
Chicago, Milwaukee & St. Paul	91,782,691	d2.4	61,330,061	d2.5	30,452,630	d2.4	4,106,557	7.4	11.6	11.3	14.3	14.7	2.0	2.0	37.0	37.3	1.9	1.5	66.8	66.8	4.5	4.1

d Decrease. def. Deficit. id Increase deficit. *Less than one tenth of one per cent.

OPERATING REVENUES, EXPENSES AND TAXES, AND RATIO OF THE VARIOUS OPERATING EXPENSE ACCOUNTS TO TOTAL OPERATING REVENUES
FISCAL YEARS ENDING JUNE 30, 1913 AND 1914—CONTINUED

(Prepared by the Bureau of Railway Economics from returns to the Interstate Commerce Commission of railways having annual operating revenues above $1,000,000)

Road	Operating revenues		Operating expenses		Net operating revenue		Taxes		Ratio of the various operating expense accounts to total operating revenues—per cent													
									Maintenance of way and structures		Maintenance of equipment		Traffic		Transportation		General		Total operating expenses		Taxes	
	Amount 1914	Per cent of inc. over 1913	Amount 1914	Per cent of inc. over 1913	Amount 1914	Per cent of inc. over 1913	Amount 1914	Per cent of inc. over 1913	1914	1913	1914	1913	1914	1913	1914	1913	1914	1913	1914	1913	1914	1913
WESTERN DISTRICT—*Continued:*																						
Chicago, Peoria & St. Louis	$1,676,617	d1.2	$1,688,511	5.5	def. $11,894	d112.2	$72,265	37.9	19.4	15.9	23.8	21.4	4.6	4.9	49.1	47.9	3.8	4.1	100.7	94.2	4.3	3.1
Chicago, Rock Island & Gulf	2,819,779	d17.0	2,106,807	d3.7	712,972	d41.0	115,055	29.6	12.7	11.1	13.1	10.5	4.1	3.7	41.5	36.3	3.3	2.8	74.7	64.4	4.1	2.6
Chicago, Rock Island & Pacific	65,388,334	d3.8	48,893,139	d2.8	16,495,195	d6.6	3,200,577	12.0	13.0	14.0	14.4	14.3	2.8	2.7	41.7	40.5	2.9	2.5	74.8	74.0	4.9	4.2
Chicago, St. Paul, Minneap. & Omaha	17,992,371	5.9	12,632,571	6.3	5,359,800	5.0	973,283	16.9	14.5	13.0	12.7	12.9	2.0	2.1	38.6	39.7	2.4	2.3	70.2	70.0	5.4	4.9
Colorado & Southern	7,608,129	d13.8	5,582,173	d10.0	2,025,956	d22.8	397,543	13.2	14.1	13.2	18.1	22.8	1.7	1.5	36.0	29.8	3.5	3.0	73.4	70.3	5.2	4.0
Colorado Midland	1,761,982	d3.6	1,729,612	4.3	32,370	d81.0	108,000	11.1	19.5	14.8	24.2	22.4	5.3	5.0	45.2	44.7	3.9	3.8	98.1	90.7	6.1	5.3
Denver & Rio Grande	23,167,051	d5.3	16,018,196	d6.0	7,148,855	d3.5	1,009,144	6.4	14.7	14.5	18.3	18.6	2.1	2.2	31.3	31.6	2.7	2.8	69.1	69.7	4.4	3.9
Denver & Salt Lake	1,215,361	5.0	916,812	3.2	298,550	11.1	36,587	d13.4	18.4	17.4	16.6	17.7	2.0	2.5	33.9	33.9	4.5	5.3	75.4	76.8	3.0	3.7
Duluth & Iron Range	6,518,526	d8.5	3,458,919	4.1	3,059,607	d19.4	350,917	d3.1	14.1	12.5	12.0	9.6	0.2	0.2	24.2	22.4	2.6	2.0	53.1	46.7	5.4	5.1
Duluth, Missabe & Northern	7,311,844	d13.7	4,040,361	6.2	3,271,483	d30.0	406,118	d4.1	16.9	11.4	14.3	11.6	0.4	0.3	21.3	19.8	2.4	1.8	55.3	44.9	5.6	5.0
Duluth, South Shore & Atlantic	3,412,575	d*	2,763,997	1.5	648,579	d5.8	247,443	12.7	23.3	21.0	12.6	12.1	3.1	3.5	38.0	39.8	4.0	3.4	81.0	79.8	7.3	6.4
Duluth, Winnipeg & Pacific	1,743,894	30.2	1,378,570	57.7	365,324	d21.5	87,721	31.0	16.6	12.6	19.6	12.9	1.5	0.7	37.4	36.1	4.0	3.0	79.1	65.3	5.0	5.0
El Paso & Southwestern	9,057,553	4.6	5,596,630	9.3	3,460,924	d2.2	487,224	28.6	14.2	12.0	13.7	13.4	2.3	2.0	28.4	28.0	3.2	3.7	61.8	59.1	5.4	4.4
Florence & Cripple Creek	1,228,512	d*	703,305	6.1	525,208	d7.3	75,865	87.3	11.5	9.7	9.5	9.5	1.8	1.8	30.0	29.1	4.4	3.8	57.2	53.9	6.2	3.3
Fort Worth & Denver City	4,738,723	d11.2	3,533,661	d5.7	1,205,062	d24.2	182,072	41.2	12.4	11.2	15.0	18.4	1.8	1.6	41.4	35.7	4.0	3.3	74.6	70.2	3.8	2.4
Galveston, Harrisburg & San Antonio	11,824,091	d2.0	9,722,027	1.6	2,102,065	d15.7	573,952	55.9	13.6	10.8	18.7	20.5	3.4	3.4	43.0	41.5	3.5	3.1	82.2	79.3	4.9	3.1
Great Northern	75,441,366	d4.1	46,519,273	1.5	28,922,093	d11.9	4,790,573	12.0	16.9	15.7	13.0	11.9	1.8	1.6	28.1	27.3	1.9	1.8	61.7	58.3	6.4	5.4
Gulf, Colorado & Santa Fe	12,882,258	d6.0	9,959,733	d2.3	2,922,525	d16.6	583,331	24.2	15.6	15.7	16.2	15.5	2.5	2.2	39.8	38.0	3.2	3.0	77.3	74.4	4.5	3.4
Houston & Texas Central	6,551,983	d4.1	5,555,614	1.3	996,369	d26.9	326,310	40.9	16.7	15.5	14.5	17.0	2.6	3.2	47.6	41.5	3.4	3.1	84.8	80.3	5.0	3.4
Houston East & West Texas	1,443,373	2.9	1,061,696	0.2	381,677	11.0	57,010	32.9	16.6	24.0	10.9	12.3	1.6	1.8	41.0	34.1	3.4	3.3	73.5	75.5	3.9	3.1
International & Great Northern	9,941,374	d11.7	8,021,580	d5.9	1,919,794	d29.8	339,841	d*	16.4	13.1	11.2	13.8	3.2	2.8	45.9	42.6	4.0	3.4	80.7	75.7	3.4	3.0
Kansas City Southern	10,993,454	2.7	6,910,321	2.4	4,083,133	3.1	567,857	22.0	10.3	9.6	12.2	12.6	3.0	2.9	33.3	34.2	4.1	3.7	62.9	63.0	5.2	4.3
Louisiana & Arkansas	1,700,208	1.6	1,135,865	7.2	564,344	d8.0	69,255	37.9	19.1	16.2	16.2	15.2	1.8	1.7	26.1	26.6	3.6	3.6	66.8	63.3	4.1	3.0
Louisiana Ry. & Navigation Co.	1,971,718	4.2	1,545,600	8.4	426,118	d8.6	80,060	34.5	18.5	14.7	12.0	12.8	3.7	3.8	40.2	39.9	4.0	4.1	78.4	75.3	4.1	3.1
Louisiana Western	2,314,284	d*	1,663,597	5.8	650,687	d12.3	114,732	26.6	11.2	12.2	21.3	18.3	3.8	3.8	32.1	30.7	3.5	3.0	71.9	68.0	5.0	3.9
Midland Valley	1,617,566	7.0	1,343,951	6.1	273,615	11.8	78,983	9.9	22.2	24.8	19.0	18.5	1.8	2.1	35.4	33.8	4.7	4.6	83.1	83.8	4.9	4.8
Minneapolis & St. Louis	9,620,884	d0.9	6,891,813	2.7	2,729,071	d9.0	410,361	15.0	13.5	12.9	14.7	12.5	2.2	2.2	38.7	39.0	2.5	2.5	71.6	69.1	4.3	3.7
Minneapolis, St. P. & Sault Ste. M.	28,775,634	d9.4	18,941,938	0.3	9,833,696	d23.6	1,182,366	d9.0	12.5	11.0	15.4	12.5	2.3	2.0	33.4	31.8	2.2	2.2	65.8	59.5	4.1	4.1
Missouri & North Arkansas	1,293,618	4.6	1,225,154	2.1	68,464	90.1	72,338	15.9	26.1	33.4	19.5	15.9	3.4	3.1	40.4	39.6	5.3	5.1	94.7	97.1	5.6	5.0
Missouri, Kansas & Texas	31,521,188	d2.6	22,669,657	d0.6	8,851,531	d7.2	1,499,521	16.4	14.5	14.3	12.4	12.7	2.3	2.3	38.8	37.9	3.9	3.3	71.9	70.5	4.8	4.0
Missouri, Oklahoma & Gulf	1,171,787	8.6	1,183,156	17.4	def. 11,369	d116.1	74,309	15.3	22.6	18.6	16.6	16.1	5.4	5.9	49.3	46.3	7.1	6.5	101.0	93.4	6.3	6.0
Missouri Pacific	26,622,041	d5.0	21,776,082	d1.2	4,845,958	d19.1	1,170,180	4.0	15.4	13.6	18.7	17.3	2.6	2.7	42.0	42.1	3.1	2.9	81.8	78.6	4.4	4.0
Morgan's La. & Tex. R.R. & S.S. Co.	4,700,887	0.9	3,614,123	d7.8	1,086,764	47.6	268,628	21.7	13.3	18.3	15.6	15.8	3.1	3.5	41.5	43.4	3.4	3.2	76.9	84.2	5.7	4.7
Nevada Northern	1,761,197	7.1	925,708	16.1	835,489	d1.4	81,242	5.0	12.5	11.3	13.4	11.9	0.3	0.3	22.9	22.2	3.4	2.8	52.5	48.5	4.6	4.7
New Orleans, Texas & Mexico	1,581,020	3.2	1,466,805	16.1	114,215	d57.6	18,515	d16.1	32.2	17.2	10.2	11.9	2.9	2.7	40.4	45.5	7.1	5.1	92.8	82.4	1.2	1.4
Northern Pacific	68,544,802	d5.7	41,472,053	d7.2	27,072,749	d3.3	5,030,584	25.8	13.7	14.0	11.8	11.8	1.8	1.8	31.7	32.4	1.5	1.5	60.5	61.5	7.3	5.5
Northwestern Pacific	3,745,805	1.0	2,653,359	2.3	1,092,446	d2.0	182,852	19.8	15.7	14.4	13.6	13.5	1.2	1.2	36.3	36.7	4.0	4.2	70.8	70.0	4.9	4.1
Oregon Short Line	22,005,594	d*	12,167,948	6.5	9,837,646	d7.1	1,516,784	5.4	12.5	11.2	12.6	11.3	2.0	1.7	25.3	25.3	2.9	2.4	55.3	51.9	6.9	6.5
Oregon-Washington R. R. & Nav. Co.	17,227,641	d5.4	11,725,239	d4.3	5,502,402	d7.5	1,298,817	9.0	14.0	14.0	11.9	10.9	3.4	3.1	34.6	36.0	4.2	3.3	68.1	67.3	7.5	6.5
Panhandle & Santa Fe	1,350,819	d10.2	911,653	d2.7	439,166	d22.5	45,010	44.5	11.0	6.7	20.0	20.7	1.4	1.8	31.8	30.2	3.3	2.9	67.5	62.3	3.3	2.1
Pecos & Northern Texas	2,396,037	d4.7	1,584,336	d9.6	811,701	6.7	88,524	46.7	10.9	12.0	18.2	20.0	1.4	1.8	32.3	32.8	3.3	3.1	66.1	69.7	3.7	2.4
St. Joseph & Grand Island	1,610,060	3.6	1,407,073	d0.3	202,987	43.1	86,482	16.9	20.3	22.8	15.0	14.9	3.7	3.8	43.2	45.0	5.2	4.4	87.4	90.9	5.4	4.8
St. Louis & San Francisco	42,458,880	d2.2	31,073,710	8.7	11,385,169	d23.1	1,415,348	d0.8	17.0	12.3	16.7	13.3	2.1	2.2	34.6	35.3	2.8	2.8	73.2	65.9	3.3	3.3
St. Louis, Brownsville & Mexico	2,660,633	d9.2	2,107,944	d10.0	552,689	d6.0	88,701	29.6	22.3	15.8	11.0	11.1	2.3	2.0	38.6	47.2	5.0	3.9	79.2	80.0	3.3	2.3
St. Louis, Iron Mountain & Southern	33,171,860	d2.8	21,346,290	d5.8	11,825,569	3.1	1,343,253	13.0	13.4	16.0	15.9	14.7	2.0	2.0	30.5	31.4	2.6	2.3	64.4	66.4	4.0	3.5
St. Louis Merchants' Bridge Terminal	1,921,263	d7.7	1,610,068	d1.9	311,195	d29.2	73,151	5.4	18.9	18.0	6.4	5.5	0.5	0.4	54.1	51.5	3.9	3.5	83.8	78.9	3.8	3.3
St. Louis, San Francisco & Texas	1,480,212	d2.2	1,321,907	7.0	158,304	d43.1	18,368	37.7	22.2	17.5	16.1	12.5	2.0	2.0	44.5	45.2	4.5	4.4	89.3	81.6	1.2	0.9
St. Louis Southwestern	8,212,255	d4.5	5,160,890	5.7	3,051,365	d17.9	389,625	15.4	9.9	10.6	18.4	14.6	4.2	4.1	26.1	23.9	4.2	3.6	62.8	56.8	4.7	3.9
St. Louis Southwestern Ry. of Texas	4,532,301	d3.6	4,606,827	6.3	def. 74,527	d120.3	212,261	61.9	24.4	20.9	24.8	20.6	3.5	3.4	43.5	42.3	5.4	5.0	101.6	92.2	4.7	2.8
San Antonio & Aransas Pass	4,648,197	d9.0	3,984,756	5.5	663,441	d50.3	160,563	14.9	22.1	17.7	15.6	12.9	1.6	1.5	43.3	39.2	3.1	2.6	85.7	73.9	3.5	2.7
San Pedro, Los Angeles & Salt Lake	10,626,703	3.8	7,214,976	5.9	3,411,727	d0.5	532,484	21.7	12.2	11.4	16.3	16.7	3.6	3.7	33.7	32.5	2.1	2.2	67.9	66.5	5.0	4.3
Southern Pacific	92,038,088	d3.5	54,991,140	0.5	37,046,948	d8.9	5,325,670	21.6	11.7	10.7	14.2	13.8	2.1	2.2	28.9	28.0	2.9	2.7	59.8	57.4	5.8	4.6
Spokane International	1,020,069	d11.1	591,933	d13.8	428,136	d7.2	42,427	10.6	15.0	17.6	6.3	6.4	2.3	2.1	29.9	29.9	4.5	3.8	58.0	59.8	4.2	3.3
Spokane, Portland & Seattle	4,901,740	d8.2	2,808,643	4.2	2,093,097	d20.9	640,800	0.0	18.0	12.6	9.3	8.7	2.0	1.8	24.8	24.5	3.2	2.9	57.3	50.5	13.1	12.0
Terminal R. R. Assn. of St. Louis	2,811,293	d5.8	1,873,483	d1.3	937,810	d13.6	335,811	5.0	16.5	15.0	7.9	7.1	0.4	0.4	39.4	37.7	2.4	3.4	66.6	63.6	11.9	10.7
Texas & New Orleans	4,174,321	d2.2	3,794,692	1.0	379,629	d25.7	214,132	38.2	18.6	21.7	22.8	20.6	2.5	2.3	43.2	40.0	3.8	3.4	90.9	88.0	5.1	3.6
Texas & Pacific	18,652,685	3.2	14,238,007	d3.6	4,414,678	33.5	757,341	9.2	11.9	13.1	15.9	16.5	2.5	2.3	43.2	46.7	2.8	3.1	76.3	81.7	4.1	3.8
Toledo, Peoria & Western	1,293,609	d7.1	1,236,155	8.9	57,454	d77.7	73,921	15.7	19.5	17.6	25.2	21.6	2.4	2.1	45.1	37.2	3.4	3.0	95.6	81.5	5.7	4.6
Trinity & Brazos Valley	2,302,679	d18.8	2,386,502	d10.0	def. 83,823	d145.4	66,167	39.3	27.0	20.7	15.4	14.8	5.2	4.4	49.7	48.5	6.3	5.1	103.6	93.5	2.9	1.7
Union Pacific	51,075,516	d1.0	29,498,632	3.8	21,576,884	d6.9	2,263,265	11.1	11.0	11.0	14.3	12.1	2.5	2.3	27.0	27.0	2.9	2.7	57.7	55.1	4.4	3.9
Vicksburg, Shreveport & Pacific	1,776,777	4.2	1,373,417	5.3	403,360	0.3	83,862	12.7	16.5	19.0	19.8	18.3	2.4	2.3	35.0	33.2	3.6	3.6	77.3	76.4	4.7	4.4
Western Pacific	6,099,573	d1.2	4,995,891	11.5	1,103,682	d34.9	379,259	36.4	22.1	15.2	13.1	8.4	5.5	5.8	36.3	38.0	4.9	5.1	81.9	72.5	6.2	4.5

d Decrease. def. Deficit. id Increase deficit. *Less than one tenth of one per cent.

that would create sufficient interest among the employees to bring them into the safety meetings willingly. And, of course, a "human interest" story will leave on their minds a more lasting impression than the ordinary didactic lecture. It is the intention of the company to show the "movie" in a specially equipped car, to be run over all of the Central lines, as has been done with the safety exhibit cars, stopping at the principal points. The pictures will also be used at large safety meetings conducted in halls or theaters in the various cities on the line.

The story is in brief as follows:

Henry Hill, a trainman, at the end of his run, coming in to the yard and jumping off the caboose, starts, against the advice of a fellow employee, to take a short cut along the tracks to his home, and is struck by an engine and killed, leaving a widow and two children, a boy and a girl. Soon after this the family is dispossessed, the widow later dies in poverty and the two children are sent to an orphan asylum. Fifteen years later, the son, Steve Hill, becomes a brakeman in the yard where his father was killed. He is of careless habits and is shown on the screen taking the usual risks, such as kicking a drawbar with his foot and jumping on the front of a moving yard engine. For this conduct he is reproved by the yardmaster, Jack Warren. The "human interest" of the story comes in when "Steve" meets Mary, the yardmaster's daughter, and courts her. The father's consent to marriage is withheld because of Steve's careless habits in his work. Steve, nevertheless, does not take the lesson to heart, and a short time after, disregarding a blue flag, he causes a slight collision on a repair track, and knocks a car body off its supporting horses, thereby causing serious injury to a car repairer. He is then discharged, at once; and is also repudiated by Mary. Going home in a disconsolate mood, he throws himself on his bed, falls asleep and has a dream, in which he sees himself taking all sorts of chances. For instance, he crosses the track between two cars and barely escapes being crushed. He is hurled from a side ladder by a car which stands out beyond the fouling point. Walking across a track without looking where he is going, he is almost run over by an engine. Finally, however, he takes one chance too many and loses his leg. He awakes from his dream with a start, overjoyed, to be sure, to find that his leg is not gone; but taught a lesson that makes him begin anew with "Safety First" as his motto. He is reinstated in his job, and marries the girl. The scene then passes to thirty years later showing him and his wife, both gray haired, in their happy home. "Steve" is telling a party of friends that his policy of Safety-First has made him a successful railroad man.

The picture is in two reels, and takes about half an hour to show. It is well done, and is to be classed as better than the average. Mr. Dow says that the Atchison, Topeka & Santa Fe; the Chicago, Burlington & Quincy, and the Delaware, Lackawanna & Western have made arrangements to use the film.

National Association of Railway Commissioners

A call has been issued for the twenty-sixth annual convention of the National Association of Railway Commissioners to begin in Washington, D. C., on November 17, and to continue for four or five days. The program provides for two special addresses, one by Chairman Harlan, of the Interstate Commerce Commission, and one by C. A. Prouty, director of valuation of the commission. The time of the convention will be largely devoted to the presentation and discussion of reports of 19 committees with 9 subcommittees. It is hoped that all the reports will be completed and sent to the secretary for printing and distribution at least 30 days in advance of the meeting. The committees to report include the following: Amendment of Act to Regulate Commerce; Car Service Demurrage; Reciprocal Demurrage; Storage Rules and Charges; Express Service and Express Rates; Grade Crossings and Trespassing on Railroads; Legislation; Powers, Duties and Work of Railway Commissions; Railroad Taxes and Plans for Ascertaining Fair Valuation of Railroad Property; Rates and Rate-Making; Railway Capitalization; Railway Service and Railway Accommodations; Safety Appliances; Statistics and Accounts; Shippers' Claims; Statistics and Accounts of Electric Railways; Telephone and Telegraph Rates and Service; Uniform Classification and Simplification of Tariffs; Rails and Equipment, and Physical Valuation.

Master Mechanics' and Master Car Builders' Associations

The executive committees of the American Railway Master Mechanics' Association, the Master Car Builders' Association and the Railway Supply Manufacturers' Association will hold a meeting at the Hotel Biltmore, New York, at 10 a. m. on October 22. It is very urgent that all members of these committees attend because the place for the 1915 meeting will be decided and arrangements made in relation thereto.

MEETINGS AND CONVENTIONS

The following list gives names of secretaries, dates of next or regular meetings, and places of meeting.

AIR BRAKE ASSOCIATION.—F. M. Nellis, 53 State St., Boston, Mass. Next convention, May 4-7, 1915, Hotel Sherman, Chicago.

AMERICAN ASSOCIATION OF DEMURRAGE OFFICERS.—A. G. Thomason, Demurrage Commissioner, Boston, Mass. Annual convention in April.

AMERICAN ASSOCIATION OF DINING CAR SUPERINTENDENTS.—H. C. Boardman, D. L. & W., Hoboken, N. J. Next convention, October 22-24, Washington, D. C.

AMERICAN ASSOCIATION OF FREIGHT AGENTS.—R. O. Wells, Illinois Central, East St. Louis, Ill. Annual meeting, May 21-24, 1915, Richmond, Va.

AMERICAN ASSOCIATION OF GENERAL PASSENGER AND TICKET AGENTS.—W. C. Hope, C. R. R. of N. J., 143 Liberty St., New York.

AMERICAN ASSOCIATION OF RAILROAD SUPERINTENDENTS.—E. H. Harman, Room 101, Union Station, St. Louis, Mo. Next meeting, May 20-21, 1915, San Francisco, Cal.

AMERICAN ELECTRIC RAILWAY ASSOCIATION.—E. B. Burritt, 29 W. 39th St., New York. Annual convention, October 12-16, Atlantic City, N. J.

AMERICAN ELECTRIC RAILWAY MANUFACTURERS' ASSOCIATION.—H. C. McConnaughy, 165 Broadway, New York. Meetings with American Electric Railway Association.

AMERICAN RAILWAY ASSOCIATION.—W. F. Allen, 75 Church St., New York. Semi-annual meeting, November 18, Chicago.

AMERICAN RAILWAY BRIDGE AND BUILDING ASSOCIATION.—C. A. Lichty, C. & N. W., Chicago. Next convention, October 20-22, 1914, Los Angeles, Cal.

AMERICAN RAILWAY ENGINEERING ASSOCIATION.—E. H. Fritch, 900 S. Michigan Ave., Chicago. Next convention, March 16-18, 1915, Chicago.

AMERICAN RAILWAY MASTER MECHANICS' ASSOCIATION.—J. W. Taylor, 1112 Karpen Bldg., Chicago. Annual meeting, June, 1915.

AMERICAN RAILWAY SAFETY ASSOCIATION.—L. F. Shedd, C. R. I. & P., Chicago. Next meeting, November, Chicago.

AMERICAN RAILWAY TOOL FOREMEN'S ASSOCIATION.—A. R. Davis, Central of Georgia, Macon, Ga. Annual meeting, July, 1915.

AMERICAN SOCIETY FOR TESTING MATERIALS.—Prof. E. Marburg, University of Pennsylvania, Philadelphia, Pa.

AMERICAN SOCIETY OF CIVIL ENGINEERS.—Chas. W. Hunt, 220 W. 57th St., New York. Regular meetings, 1st and 3d Wednesday in month, except June, July and August, 220 W. 57th St., New York.

AMERICAN SOCIETY OF ENGINEERING CONTRACTORS.—J. R. Wemlinger, 11 Broadway, New York. Regular meetings, 2d Thursday in month, at 2 P. M., 11 Broadway, New York.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS.—Calvin W. Rice, 29 W. 39th St., New York. Annual meeting, December 1-4, 1914, New York.

AMERICAN WOOD PRESERVERS' ASSOCIATION.—F. J. Angier, B. & O., Mt. Royal Sta., Baltimore, Md. Next convention, January 19-21, 1915, Chicago.

ASSOCIATION OF AMERICAN RAILWAY ACCOUNTING OFFICERS.—E. R. Woodson, 1300 Pennsylvania Ave., N. W., Washington, D. C. Annual convention, April 28, 1915, Atlanta, Ga.

ASSOCIATION OF MANUFACTURERS OF CHILLED CAR WHEELS.—George W. Lyndon, 1214 McCormick Bldg., Chicago. Annual meeting, second Tuesday in October, New York.

ASSOCIATION OF RAILWAY CLAIM AGENTS.—C. W. Egan, B. & O., Baltimore, Md. Annual meeting, 3d week in May, 1915, Galveston, Tex.

ASSOCIATION OF RAILWAY ELECTRICAL ENGINEERS.—Jos. A. Andreucetti, C. & N. W., Room 411, C. & N. W. Sta., Chicago. Annual convention, October 26-30, 1914, Chicago.

ASSOCIATION OF RAILWAY TELEGRAPH SUPERINTENDENTS.—P. W. Drew, Soo Line, 112 West Adams St., Chicago. Annual meeting, June 22-25, 1915, Rochester, N. Y.

ASSOCIATION OF TRANSPORTATION AND CAR ACCOUNTING OFFICERS.—G. P. Conard, 75 Church St., New York. Next meeting, December 8-9, 1914, Richmond, Va.

BRIDGE AND BUILDING SUPPLY MEN'S ASSOCIATION.—L. D. Mitchell, Detroit Graphite Co., Chicago, Ill. Meetings with American Railway Bridge and Building Association.

CANADIAN RAILWAY CLUB.—James Powell, Grand Trunk, P. O. Box 7, St. Lambert (near Montreal), Que. Regular meetings, 2d Tuesday in month, except June, July and August, Windsor Hotel, Montreal, Que.

CANADIAN SOCIETY OF CIVIL ENGINEERS.—Clement H. McLeod, 176 Mansfield St., Montreal, Que. Regular meetings, 1st Thursday in October, November, December, February, March and April. Annual meeting, January, Montreal.

CAR FOREMEN'S ASSOCIATION OF CHICAGO.—Aaron Kline, 841 Lawler Ave., Chicago. Regular meetings, 2d Monday in month, except July and August, Lytton Bldg., Chicago.

CENTRAL RAILWAY CLUB.—H. D. Vought, 95 Liberty St., New York. Regular meetings, 2d Friday in January, May, September and November. Annual meetings, 2d Thursday in March, Hotel Statler, Buffalo, N. Y.

ENGINEERS' SOCIETY OF WESTERN PENNSYLVANIA.—Elmer K. Hiles, 2511 Oliver Bldg., Pittsburgh, Pa. Regular meetings, 1st and 3d Tuesday, Pittsburgh.

FREIGHT CLAIM ASSOCIATION.—Warren P. Taylor, R. F. & P., Richmond, Va. Annual meeting, June 16, 1915, Chicago.

GENERAL SUPERINTENDENTS' ASSOCIATION OF CHICAGO.—A. M. Hunter, 321 Grand Central Station, Chicago. Regular meetings, Wednesday preceding 3d Thursday in month, Room 1856, Transportation Bldg., Chicago.

INTERNATIONAL RAILWAY CONGRESS.—Executive Committee, 11, Rue de Louvain, Brussels, Belgium. Next convention, June 23 to July 6, 1915, Berlin.

INTERNATIONAL RAILWAY FUEL ASSOCIATION.—C. G. Hall, C. & E. I., 922 McCormick Bldg., Chicago. Annual meeting, May 17-20, 1915, Chicago.

INTERNATIONAL RAILWAY GENERAL FOREMEN'S ASSOCIATION.—Wm. Hall, 829 W. Broadway, Winona, Minn. Next convention, July 14-17, 1915, Sherman House, Chicago.

INTERNATIONAL RAILROAD MASTER BLACKSMITHS' ASSOCIATION.—A. L. Woodworth, C. H. & D., Lima, Ohio.

MAINTENANCE OF WAY AND MASTER PAINTERS' ASSOCIATION OF THE UNITED STATES AND CANADA.—T. I. Goodwin, C. R. I. & P., Eldon, Mo. Next convention, November 17-19, 1914, Detroit, Mich.

MASTER BOILER MAKERS' ASSOCIATION.—Harry D. Vought, 95 Liberty St., New York. Annual convention, May, 1915.

MASTER CAR AND LOCOMOTIVE PAINTERS' ASSOCIATION OF THE UNITED STATES AND CANADA.—A. P. Dane, B. & M., Reading, Mass.

MASTER CAR BUILDERS' ASSOCIATION.—J. W. Taylor, 1112 Karpen Bldg., Chicago. Annual meeting, June, 1915.

NATIONAL RAILWAY APPLIANCES ASSOCIATION.—Bruce V. Crandall, 537 So. Dearborn St., Chicago. Next convention, March 15-19, 1915, Chicago.

NEW ENGLAND RAILROAD CLUB.—W. E. Cade, Jr., 683 Atlantic Ave., Boston, Mass. Regular meetings, 2d Tuesday in month, except June, July, August and September, Boston.

NEW YORK RAILROAD CLUB.—Harry D. Vought, 95 Liberty St., New York. Regular meetings, 3d Friday in month, except June, July and August, 29 W. 39th St., New York.

NIAGARA FRONTIER CAR MEN'S ASSOCIATION.—E. Frankenberger, 623 Brisbane Bldg., Buffalo, N. Y. Meetings monthly.

PEORIA ASSOCIATION OF RAILROAD OFFICERS.—M. W. Rotchford, Union Station, Peoria, Ill. Regular meetings, 2d Thursday in month, Jefferson Hotel, Peoria.

RAILROAD CLUB OF KANSAS CITY.—C. Manlove, 1008 Walnut St., Kansas City, Mo. Regular meetings, 3d Friday in month, Kansas City.

RAILROAD MASTER TINNERS, COPPERSMITHS AND PIPEFITTERS' ASSOCIATION.—U. G. Thompson, C. & E. I., Danville, Ill. Annual meeting, May, 1915.

RAILWAY BUSINESS ASSOCIATION.—Frank W. Noxon, 30 Church St., New York. Annual meeting, December 10, 1914, Waldorf-Astoria Hotel, New York.

RAILWAY CLUB OF PITTSBURGH.—J. B. Anderson, Room 207, P. R. R. Sta., Pittsburgh, Pa. Regular meetings, 4th Friday in month, except June, July and August, Monongahela House, Pittsburgh.

RAILWAY ELECTRICAL SUPPLY MANUFACTURERS' ASSOCIATION.—J. Scribner, 1021 Monadnock Block, Chicago. Meetings with Association of Railway Electrical Engineers.

RAILWAY FIRE PROTECTION ASSOCIATION.—C. B. Edwards, Fire Ins. Agt., Mobile & Ohio, Mobile, Ala.

RAILWAY SIGNAL ASSOCIATION.—C. C. Rosenberg, Times Bldg., Bethlehem, Pa.

RAILWAY STOREKEEPERS' ASSOCIATION.—J. P. Murphy, L. S. & M. S., Box C, Collinwood, Ohio. Annual meeting, May, 1915.

RAILWAY SUPPLY MANUFACTURERS' ASSOCIATION.—J. D. Conway, 2136 Oliver Bldg., Pittsburgh, Pa. Meetings with Master Car Builders and Master Mechanics Associations.

RAILWAY TELEGRAPH AND TELEPHONE APPLIANCE ASSOCIATION.—G. A. Nelson, 50 Church St., New York. Meetings with Association of Railway Telegraph Superintendents.

RICHMOND RAILROAD CLUB.—F. O. Robinson, C. & O., Richmond, Va. Regular meetings, 2d Monday in month, except June, July and August.

ROADMASTERS' AND MAINTENANCE OF WAY ASSOCIATION.—L. C. Ryan, C. & N. W., Sterling, Ill.

ST. LOUIS RAILWAY CLUB.—B. W. Frauenthal, Union Station, St. Louis, Mo. Regular meetings, 2d Friday in month, except June, July and August, St. Louis.

SALT LAKE CITY TRANSPORTATION CLUB.—R. E. Rowland, Hotel Utah Bldg., Salt Lake City, Utah. Regular meetings, 1st Saturday of each month, Salt Lake City.

SIGNAL APPLIANCE ASSOCIATION.—F. W. Edmunds, 3868 Park Ave., New York. Meeting with annual convention Railway Signal Association.

SOCIETY OF RAILWAY FINANCIAL OFFICERS.—Carl Nyquist, C. R. I. & P., La Salle St. Sta., Chicago.

SOUTHERN ASSOCIATION OF CAR SERVICE OFFICERS.—E. W. Sandwich, A. & W. P. Ry., Atlanta, Ga.

SOUTHERN AND SOUTHWESTERN RAILWAY CLUB.—A. J. Merrill, Grant Bldg., Atlanta, Ga. Regular meetings, 3d Thursday, January, March, May, July, September, November, 10 A. M., Candler Bldg., Atlanta.

TOLEDO TRANSPORTATION CLUB.—Harry S. Fox, Toledo, Ohio. Regular meetings, 1st Saturday in month, Boody House, Toledo.

TRACK SUPPLY ASSOCIATION.—W. C. Kidd, Ramapo Iron Works, Hillburn, N. Y. Meetings with Roadmasters' and Maintenance of Way Association.

TRAFFIC CLUB OF CHICAGO.—W. H. Wharton, La Salle Hotel, Chicago.

TRAFFIC CLUB OF NEW YORK.—C. A. Swope, 291 Broadway, New York. Regular meetings, last Tuesday in month, except June, July and August, Waldorf-Astoria, New York.

TRAFFIC CLUB OF PITTSBURGH.—D. L. Wells, Erie R. R., Pittsburgh, Pa. Meetings bimonthly, Pittsburgh. Annual meeting, 2d Monday in June.

TRAFFIC CLUB OF ST. LOUIS.—A. F. Versen, Mercantile Library Bldg., St. Louis, Mo. Annual meeting in November. Noonday meetings October to May.

TRAIN DESPATCHERS' ASSOCIATION OF AMERICA.—J. F. Mackie, 7122 Stewart Ave., Chicago. Annual meeting June 15, 1915, Minneapolis, Minn.

TRANSPORTATION CLUB OF DETROIT.—W. R. Hurley, Superintendent's office, L. S. & M. S., Detroit, Mich. Meetings monthly, Normandie Hotel, Detroit.

TRAVELING ENGINEERS' ASSOCIATION.—W. O. Thompson, N. Y. C. & H. R., East Buffalo, N. Y.

WESTERN CANADA RAILWAY CLUB.—W. H. Rosevear, P. O. Box 1707, Winnipeg, Man. Regular meetings, 2d Monday, except June, July and August, Winnipeg.

WESTERN RAILWAY CLUB.—J. W. Taylor, 1112 Karpen Bldg., Chicago. Regular meetings, 3d Tuesday in month, except June, July and August, Karpen Bldg., Chicago.

WESTERN SOCIETY OF ENGINEERS.—J. H. Warder, 1735 Monadnock Block, Chicago. Regular meetings, 1st Monday in month, except January, July and August, Chicago. Extra meetings, except in July and August, generally on other Monday evenings.

Traffic News

The Canadian railways generally have made a rate of one fare for the round trip on the certificate plan to Calgary from all Canadian points for the International Irrigation Congress, which opened its sessions there on October 5.

The Southern Railway has applied to the Corporation Commission of North Carolina for authority to temporarily suspend the operation of a number of passenger trains, including the second sections of Nos. 37 and 38 on the main line; Nos. 15 and 16 on the Danville division and 145 and 146 on the Durham & Raleigh division. This request is made because of a falling off, in both passenger and freight business, on account of conditions due to the war in Europe.

The increase in the price of mileage tickets on the first of October led to very large sales, at many places, on the last day of September, of tickets at the old rate of two cents a mile. At Pittsburgh, Pa., one large corporation bought 1,500 books paying $30,000. At Winchester, Va., one man bought $10,000 worth. The receipts of the Boston & Maine for September were $400,000 above those of last year, and it is to the extra sales of mileage tickets that the increase is principally attributed. The Public Utility Commissioners of New Jersey on September 30 decided not to suspend the new tariffs filed by the railroads in that state advancing the price of mileage tickets.

A conference of the chief traffic officers of the St. Louis railways was held on September 28, at St. Louis, to consider the controversy that has arisen over the payment of the bridge tolls on through traffic crossing the Mississippi river. For many years all traffic between eastern and western roads had been interchanged at the east bank of the river. In 1906 a municipal commission prevailed on the eastern roads to make rates from St. Louis the same as those from East St. Louis. The western roads now demand that the eastern roads take the freight at St. Louis instead of at East St. Louis; by which action they would have to absorb the bridge toll. At the meeting the eastern roads unanimously declined to do so and no adjustment was reached.

A conference which had been called for last week between industrial traffic managers of Cleveland, Cincinnati, Columbus, Toledo, Dayton, Springfield and other Ohio cities, with the traffic officers of the Ohio railroads before the Ohio Public Utilities Commission to discuss the 5 per cent advance in freight rates in Central Freight Association territory recently allowed by the Interstate Commerce Commission, has been postponed because of the decision of the commission to reopen the case. Many representatives of the Ohio shippers had opposed the application of the 5 per cent advance to the Ohio intrastate rates and complained that the decision of the Interstate Commerce Commission constitutes a discrimination against shippers in Central Freight Association territory as compared with those outside of that territory.

The traffic department of the Chicago & North Western, in cooperation with the Upper Peninsula Development Bureau, has aided greatly in the development of the potato growing industry in the Cloverland district of Michigan during the past year. The railway paid all the expenses in establishing five potato patches, consisting of 1,000 hills in each patch, on its right of way in Menominee county, Delta county and Marquette county. This ground was prepared, cultivated and plowed by the section men at the respective stations. The seed was purchased by the railway and a liberal amount of commercial fertilizer was purchased and applied. The care and culture of the potatoes have been under the supervision of the roadmaster, and the service has been rendered by the section men. Each patch has been located on a different variety of soil, and the crops at all five stations have far exceeded many of the adjacent potato fields that have not been benefited by the same amount of cultivation and care. The object, of course, was to prove to the farmers residing in each locality that their efforts would be crowned with greater success if they would adopt more careful methods.

Commission and Court News

INTERSTATE COMMERCE COMMISSION

The Interstate Commerce Commission has suspended tariffs filed by the Union Pacific closing the Ogden gateway after October 1, to through traffic from eastern points via the Gould lines to certain points on the Union Pacific system in Idaho and other northern territory.

Examiner Thurtell began a hearing at Chicago on October 6 on the application of the transcontinental railways for a modification of the commission's order in the intermountain rate case as to 107 commodities, which are especially subject to water competition at the Pacific coast and as to which the roads desire to make low rates to the coast without making corresponding reductions to intermediate points.

The chambers of commerce of Alexandria and Shreveport, La., have filed a complaint with the Interstate Commerce Commission against the Alabama & Vicksburg, and other carriers participating in traffic to Shreveport, attacking the class rates from St. Louis, Memphis and Kansas City to Alexandria and Shreveport, which were advanced on April 1 from one to five cents per hundred pounds on the first six classes. The complaint is that the through rates from the gateways mentioned are in many instances higher than the combination of intermediate rates.

The Sioux City Commercial Club has filed a complaint with the Interstate Commerce Commission which raises questions similar to those recently decided by the Supreme Court and the Interstate Commerce Commission in the Shreveport rate case. The Sioux City club complains against new rates included in a general reduction of about 20 per cent in the state rates of Nebraska, which became effective on September 6, under order of the Nebraska Railroad Commission, on the ground that the new rates in Nebraska are lower than rates charged for like distances from Sioux City to points in Nebraska, and that this constitutes a discrimination against Sioux City merchants in favor of those in Lincoln, Omaha, Fremont, Norfolk and other jobbing centers; and that Sioux City firms cannot compete with them in north Nebraska territory, except by sacrificing a part of their profits to overcome the disparity in rates. The commission is asked to issue an order requiring the railroad defendants to cease the alleged discriminations and to publish and maintain rates, rules and specifications which will be fair to Sioux City. This will give the roads a chance to plead before the Interstate Commerce Commission that they have reduced their rates within Nebraska under compulsion by the state commission.

Rates on Starch from Cedar Rapids, Ia.

Douglas & Co. v. Illinois Central et al. Opinion by Commissioner Harlan:

The commission is of the opinion that corn starch is not to be deemed a like kind of traffic with corn meal, hominy, grits, brewers' grits, corn flour and other uncooked product of corn. It therefore holds that the railroads in refusing transit privileges on that commodity at Cedar Rapids, Iowa, do not discriminate against the complainant. It is held, however, that certain of the rates on corn starch from Cedar Rapids are unreasonable. It is therefore ordered that the rates to St. Paul and Duluth be not in excess of 17½ cents; to St. Louis, 10½ cents; to Texas common points, 66 cents, and that the all rail rates to Galveston and Houston, Tex., be not in excess of the all rail rates contemporaneously maintained from Keokuk.

The present rates to destinations in Kansas and Oklahoma, to points in Arizona and New Mexico and to California terminals and North Pacific coast destinations are not found unreasonable. It is also found that the rates from Cedar Rapids and Ohio river crossings to southeastern and Mississippi valley destinations are not unreasonable nor discriminatory.

The commission also finds that the rates on corn oil from Cedar Rapids to Chicago, Peoria, St. Louis, St. Paul and Winona are unreasonable, and it is ordered that these rates be not in excess of 11, 9½, 12, 17 and 17 cents respectively. No change is ordered in the rates to Omaha and Kansas City.

The complainant will be awarded reparation on past shipments of starch and corn oil. (31 I. C. C., 587.)

STATE COMMISSIONS

The Missouri Public Service Commission on Tuesday of this week refused to grant the petition of the railroads for permission to increase intrastate passenger rates to three cents a mile and freight rates by various percentages.

The Boston & Maine has filed with the Massachusetts Public Service Commission tariffs, to become effective November 1, making increases in the rates of fare on many classes of commutation tickets. The Public Service Commission will hold a hearing October 13, at which remonstrances will be heard.

The Montana Railroad Commission has given permission to the railroads of the state to increase the demurrage rate on refrigerator cars loaded with perishable freight to two dollars a day for the first two days after the expiration of free time and three dollars daily thereafter, effective on November 15.

The Michigan Railroad Commission has issued an order permitting the railroads of the state to make a 5 per cent advance in commodity rates, with exception of plaster, ore, iron, starch, coke, clay, tile, cement, brick and sugar beets. An increase is also allowed in lumber rates, but less than the railroads had asked. The commission withheld its decision on class rates.

The Illinois Public Utilities Commission has issued a notice to all railways in the state that at a hearing in Chicago on October 12, it will take up and consider the matter of industrial switching at all points within the state. The commission will hear all facts and statements that may be presented pertaining to the subject, and will adopt a rule to be used in lieu of canceled rule No. 23 of the Illinois Railroad and Warehouse Commission to govern the rates, rules and regulations pertaining to industrial switch movements within the state.

The four principal railways of Massachusetts have asked for approval of an increase in mileage ticket rates from 2 cents a mile to 2¼ cents. At a public hearing before the Public Service Commission in Boston on Monday they said that under the present conditions they were unable to meet expenses. The petitioners were the Boston & Maine, the Boston & Albany, the New York, New Haven & Hartford, and the Central Vermont. William J. Hobbs, vice-president of the Boston & Maine, testified that in the year ended June 30, 1914, his road showed a corporate loss of $2,014,742; and that during July and August of this year the company ran $46,022 short of the amount needed to pay charges.

The California Railroad Commission has denied the application of the railways of the state for permission to increase the present rates to passengers occupying drawing rooms and compartments. The railways contended that when a single person occupied such accommodations he received an additional service and should be required to pay an additional fare. The commission holds that passengers occupying accommodations mentioned do receive an additional service, but that such service is paid for in the cost of Pullman tickets, and that if the carriers do not receive additional compensation their contract with the Pullman Company is at fault, and that the passengers should not be required to pay in addition to the increased cost of Pullman tickets the increased fares applied for.

The Boston & Maine Railroad has notified the New Hampshire Public Service Commission that it will not accept the tariff of freight rates framed by the commission, which has been on trial by the railroad. By the terms of the act of the legislature of 1913 the Public Service Commission was to frame such a tariff, the railroad was to try its operation until October 1, and then either accept it or return to the rates in force prior to the consolidations of roads in 1883 and 1889. The determination of the railroad to return to the old rates is based upon the decision of the Supreme Court in the case of Clough and Martin against the railroad whereby the road is allowed to fix such rates upon any commodity as in the aggregate shall not be higher than the aggregate of rates charged upon that commodity prior to the consolidations.

Railway Officers

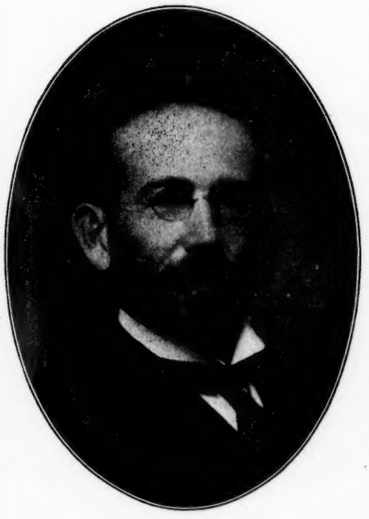
Executive, Financial, Legal and Accounting

John Leslie, assistant controller of the Canadian Pacific at Montreal, Que., has been appointed controller, with headquarters at Montreal.

T. J. Kennedy has been elected president and general manager of the Algoma Central & Hudson Bay and the Algoma Eastern, with headquarters at Sault Ste. Marie, Ont.

J. B. Wagner, acting auditor of the Toledo & Ohio Central, has been appointed auditor of the company, with headquarters at Toledo, Ohio, succeeding John Landgraff, Jr., deceased.

Herbert L. Utter, who has been elected secretary and treasurer of the Missouri Pacific, with headquarters at New York, as has been announced in these columns was born on May 1, 1868, at Morrisville, N. Y. He was a student at Wayland Academy, Beaverdam, Wis., until 1886, and later was graduated from the Canandaigua (N. Y.) High School, and from Eastman's Business College, Poughkeepsie, N. Y. On April 4, 1891, Mr. Utter entered the service of the Missouri Pacific, and has been in the continuous service of that road ever since. In 1908 he was appointed assistant secretary, and in 1911 was promoted to assistant secretary and assistant treasurer, which position he held at the time of his recent election as secretary and treasurer of the same road as above noted.



H. L. Utter

Edward J. White, whose appointment as general solicitor of the Missouri Pacific and the St. Louis, Iron Mountain & Southern has already been announced in these columns, was born February 11, 1869, at St. Louis, Mo. He attended public school at Springfield, Mo., and Joplin later; from 1883 to 1885, was a student at the University of Arkansas, Fayetteville, Ark., and in 1888 entered the University of Missouri at Columbia, Mo., graduating in 1891. He was admitted to the bar that year and commenced the practice of law at Aurora, Mo. He entered railway service in 1903 as assistant attorney for the Missouri Pacific, with jurisdiction over counties in southwestern Missouri, retaining his headquarters at Aurora. In April, 1911, he was appointed general attorney, with office at Kansas City, with jurisdiction over Jackson county, Missouri. Mr. White held the latter position at the time of his recent promotion to general solicitor, with headquarters at St. Louis, as above noted.

E. J. White

A. D. Lightner, chief officer, operating and traffic, of the New Orleans, Texas & Mexico, and the Louisiana Southern, has been appointed general manager for the receiver, having jurisdiction over all departments, with headquarters at New Orleans, La.

B. I. Spock, counsel of the New York, New Haven & Hartford for Connecticut, has been appointed general solicitor of the company, with headquarters at New Haven, Conn. Mr. Spock was born on December 31, 1872, at New Haven, and was graduated from Yale University, academic department in 1895, and from Yale Law School in 1897. He entered the service of the New York, New Haven & Hartford on September 1, 1903, as claims attorney for New York, Connecticut and western Massachusetts, with headquarters at New Haven. He subsequently served successively as assistant attorney and attorney, and at the time of his recent appointment was counsel for the state of Connecticut for the same road, as above noted.

John A. D. Vickers, whose election as vice-president and general manager of the American Express Company, with headquarters at Chicago, has already been announced in these columns, was born May 22, 1858, at Toronto, Ont. He entered the express business in Canada under his father, who was the founder of Vickers' Express Company, and became superintendent of the company in 1882. Upon the absorption of Vickers' Express Company by the American Express Company in 1889, Mr. Vickers was appointed superintendent of the Canada division of the latter company. In 1891 he was made superintendent of the National Express Company's lines in the West, with headquarters at Chicago. Later he was promoted to general superintendent and subsequently became general manager of the Western department. Upon the recent election of Mr. George C. Taylor as president of the American Express Company, Mr. Vickers was made acting vice-president and general manager of the Western lines, and on September 28 he was elected to that office, as above noted.

J. A. D. Vickers

Operating

D. Dale has been appointed superintendent of the Bevier & Southern, with headquarters at Bevier, Mo. This road has taken over the operation of the Missouri & Louisiana.

Joseph H. Butler, assistant to the general manager of the National Express Company, has been appointed superintendent, Western department, with headquarters at Chicago.

O. E. Linn, trainmaster of the Michigan division of the Vandalia at Logansport, Ind., has been transferred to Decatur, Ill., as trainmaster and road foreman of engines of the Peoria division.

D. B. Lantry, superintendent of the Superior division of the Great Northern at Superior, Wis., has been transferred to Sioux City, Iowa, as superintendent of the Sioux City division, succeeding W. D. Mason, who has been appointed trainmaster at Willmar, Minn. The Superior and Mesaba divisions have been combined and G. E. Votaw, superintendent of the Mesaba division at Superior, Wis., will have charge of the consolidated division.

M. J. Foley, assistant division superintendent of the Chicago, Burlington & Quincy at Greybull, Wyo., has been appointed superintendent of the Casper division, with headquarters at

Casper, Wyo., effective October 1. This is a new division comprising the line between Billings, Mont., and Orin Junction, Wyo., including the Cody branch; and commencing October 18 the track between Orin Junction and Hartville Junction will be leased from the Colorado & Southern and operated and maintained by the Casper division.

B. C. Byers, superintendent of the Cairo division of the Cleveland, Cincinnati, Chicago & St. Louis, has been appointed superintendent of terminals at Indianapolis, Ind. E. H. Zeigler, trainmaster at Terre Haute, Ind., succeeds Mr. Byers at Mt. Carmel, Ill., as division superintendent, and F. Jones succeeds Mr. Zeigler. The headquarters of J. V. Kennedy, division superintendent, have been removed from Cleveland, Ohio, to Bellefontaine. P. T. White, trainmaster at Cleveland, has been appointed superintendent of Cleveland terminals also.

A. M. Acheson, chief engineer of the Missouri, Kansas & Texas at Dallas, Tex., has been appointed superintendent of the Trinity district, with headquarters at Trinity, Tex., to succeed W. P. Danforth, assigned to other duties, and the former office is abolished. C. A. Thanheiser, engineer maintenance of way at Dallas, has been appointed superintendent of the Smithville district, with office at Smithville, Tex., succeeding J. F. Hickey, who has been appointed superintendent of the McAlester district, with headquarters at Muskogee, Okla., in place of F. Ringer, transferred. (See Engineering and Rolling Stock.)

Traffic

E. E. Wieland has been appointed general agent of the Chicago & Eastern Illinois at Evansville, Ind., succeeding F. P. Jeffries, retired.

J. M. Ball, general cotton agent of the International & Great Northern, has been appointed assistant general freight agent, with headquarters at Houston, Tex.

C. E. Bode has been appointed general freight agent, and W. P. Potter, general passenger agent, of the Illinois Traction system, both with headquarters at Springfield, Ill. The position of traffic manager is abolished.

C. W. Westbury, assistant general agent of the traffic department of the Southern Railway at Washington, D. C., has been promoted to general agent, with office at Washington, succeeding L. S. Brown, deceased.

S. MacClurkan, district freight agent of the Chicago, Milwaukee & St. Paul at Chicago, has been transferred to Milwaukee, Wis., as commercial agent, succeeding A. A. Wilson, who has been appointed division freight and passenger agent at Davenport, Iowa.

Engineering and Rolling Stock

C. H. Blackman has been appointed principal assistant engineer of the Louisville & Nashville, with headquarters at Louisville, Ky., succeeding J. Werness, deceased.

William R. McMunn has been appointed general car inspector of the New York Central & Hudson River, with headquarters at Albany, N. Y., succeeding F. W. Chaffee, deceased.

Paul A. G. Tilmot, assistant roadmaster of the Northern Pacific at Tacoma, Wash., has been appointed roadmaster of the South Bend and Grays Harbor branches, with headquarters at Tacoma.

J. H. Wood has been appointed supervisor of locomotive operation of the Oklahoma and Panhandle divisions of the Rock Island, with headquarters at El Reno, Okla., succeeding C. S. Yeaton, transferred.

W. S. Johns, Jr., supervisor of the Pennsylvania Railroad at East Brady, Pa., has been appointed supervisor of division No. 21, with office at Tyrone, succeeding J. D. Lovell, transferred, and N. A. Camera, assistant supervisor at Mifflin, has been appointed supervisor of division No. 34, with office at Irvona, succeeding H. S. Trimble, transferred.

L. F. Lonnbladh, engineer maintenance of way of the Missouri, Kansas & Texas at Parsons, Kan., has been appointed engineer maintenance of way of the Texas lines, with headquarters at Dallas, Tex., succeeding C. A. Thanheiser, assigned to other duties. F. Ringer, division superintendent at Muskogee, Okla., succeeds Mr. Lonnbladh at Parsons. The office of chief engineer at Dallas is abolished. (See Operating Officers.)

Harold Knight, division engineer of the Erie at Jersey City, N. J., has been appointed signal engineer, with headquarters at Jersey City, succeeding W. H. Willis, resigned. O. F. Barnes, trainmaster of the Delaware and Jefferson divisions at Susquehanna, Pa., has been appointed division engineer of the New York division, with office at Jersey City, succeeding Mr. Knight; J. W. Foote, division engineer of the Allegheny and Bradford divisions at Salamanca, N. Y., has been appointed trainmaster, with office at Susquehanna, Pa., succeeding Mr. Barnes; Arthur B. Caldwell, division engineer of the New York, Susquehanna & Western at Jersey City, N. J., succeeds Mr. Foote, and Ransom L. Dyke, assistant engineer of the Erie at Hornell, N. Y., succeeds Mr. Caldwell.

Purchasing

O. C. Wakefield, supply agent of the Northern Pacific at St. Paul, Minn., has been appointed general storekeeper, in charge of materials and supplies, with headquarters at St. Paul. S. H. Robson, supply agent at South Tacoma, Wash., has been appointed assistant general storekeeper at that place. The titles of supply agent are abolished.

OBITUARY

J. P. McCuen, formerly superintendent of motive power of the Queen & Crescent Route, died at his home in Avondale, Cincinnati, O., on October 2, aged 70 years. He was connected with the mechanical department of that system for 30 years, retiring about three years ago.

William Stewart, formerly from 1892 to 1897 freight traffic manager of the Pennsylvania Lines West of Pittsburgh, at Pittsburgh, Pa., died on October 3. He was born in July, 1833, in Ireland, and began railway work in May, 1852, as a clerk in the freight and passenger office of the Cleveland & Pittsburg at Pittsburgh, and his entire service was with that and other lines now included in the Pennsylvania Lines West of Pittsburgh. From 1858 to 1864 he was agent of the same road and the Pittsburg, Columbus & Cincinnati; he was then for four years general freight agent of the Pittsburg & Cleveland, and during the following three years was superintendent and general freight agent of the same road. From 1871 to 1892 he was general freight agent of the Pennsylvania Company and the Pittsburg, Cincinnati & St. Louis, and then to April, 1897, was freight traffic manager of the Pennsylvania Lines West of Pittsburgh.

Marshall E. Johns, superintendent of terminals of the New York, Susquehanna & Western and the Wilkesbarre & Eastern, with office at Jersey City, N. J., died on September 30, at his home in Paterson, N. J. He was born on April 17, 1860, at Washington, D. C., and was educated in the public schools of New York City. He began railway work in July, 1876, as a brakeman, and was later train baggage master and conductor on the Montclair & Greenwood Lake, now a part of the Erie. In July, 1880, he went to the New Jersey Midland, now the New York, Susquehanna & Western, as brakeman, and was then consecutively to September, 1894, freight conductor, passenger conductor and yardmaster. During the following ten years he was trainmaster on the Wilkesbarre & Eastern. In September, 1904, he was appointed superintendent of the New York, Susquehanna & Western and the Wilkesbarre & Eastern, which form a part of the Erie system, and on January 1, 1914, was appointed superintendent of terminals of the same roads.

New Line in German South-West Africa.—An English consular report for 1913 states that a railway was constructed in German South-West Africa, from Kolmans Kuppe to Bogenfels, a distance of 66 miles, during the year. It runs through diamondiferous country practically all the way, and will facilitate the exploitation of the Deutsche Diamant Gesellschaft claims, as well as many which it passes en route. The Pomona mine is traversed by the line. The report also states that the locomotives employed on the line will be driven by electricity generated on the engines with benzol as fuel.

Equipment and Supplies

LOCOMOTIVE BUILDING

The Pilsen Lumber Company, Chicago, is in the market for one 50-ton locomotive.

CAR BUILDING

The Illinois Central has ordered 4 gas-electric cars from the General Electric Company.

SIGNALING

The Union Switch & Signal Company has taken an order for the material for a mechanical interlocking plant at Dollar Bay, Mich., on the Copper-Range Railroad.

The Chicago, South Bend & Northern Indiana electric line has contracted with the Union Switch & Signal Company for A.C. automatic block signals, to be put up on its lines in Northern Indiana, 64 signals in all. They will be Style "B," upper left hand quadrant semaphores, operating in two positions between 0 deg. and 45 deg. The signals will be controlled by continuous A.C. track circuits, and the materials and construction will be similar to the installation already in service on that road, recently installed by the Union company.

Railway Construction in South Africa.—A bill has recently been passed providing for the construction of a light railway in the Cape Colony from Prieska to Upington, a distance of about 150 miles. The line, which is intended primarily for the transportation of produce and other freight, will be of 3 ft. 6 in. gage, and its estimated cost is $1,687,500.

The Ways of Train Thieves in India.—The following remarkable story is being told by Indian papers: At the instance of the commissioner in Sind, a practical demonstration of the methods of expert train thieves was arranged for by the superintendent of the North-Western state railway police, for the purpose of illustrating to the traffic officers of the railway the ease with which closed "wagons" could be opened and despoiled of their contents while a train was in motion. Three expert thieves were stationed on the line about 100 yards from the spectators. A train consisting of an engine and about a dozen open "trucks" and closed "wagons" was then run into the city station yard at a speed of from 15 to 20 miles an hour. Before the train had proceeded 100 yards from the point where the thieves were stationed three closed "wagons" had been boarded and entered. Three closed "wagons" without any kind of foothold were then selected for trial. The train steamed in at the same speed as before and the above-mentioned performance was repeated with amazing ease.

English Railways and Recruiting.—The toll placed upon the English railway company, first by the loss of those who were enrolled in the territorials who had to take up arms at mobilization and second, by the loss of those who have since enlisted has been very heavy. As the London & North Western turned in 4,736 of the former and the Great Western 6,000, it has been estimated that over 50,000 railway men must have left the service when war was declared, and yet these figures are independent of those that have since enlisted in large numbers. As there are only about 650,000 men in the British railway service, such a withdrawal, even if the number be less than is estimated, would be inconvenient to the railway administration, especially as it has adopted the motto of "Business as Usual," and it might even seriously affect the military traffic. It is said, therefore, that some companies have tried to prevent wholesale enlistment. One of the Scottish railways was so depleted of its staff that representation had to be made to the government and a body of men who had enlisted sent back.

Supply Trade News

The name of the Canton Culvert Company, Canton, O., has been changed to the Canton Culvert & Silo Company.

W. E. Jenkinson, formerly western railroad representative of S. F. Bowser & Co., Fort Wayne, Ind., has resigned from that position, effective September 30.

Charles M. Schwab, president of the Bethlehem Steel Company, has resigned as a director of the American Locomotive Company. Andrew Fletcher has been elected a director to succeed him.

Jesse C. Bader has been placed in charge of the western sales branch of the McMyler Interstate Company, Cleveland, Ohio, with offices at 1503 Fisher building, Chicago, effective September 15.

T. B. Van Dorn, first vice-president of the Van Dorn Iron Works Company, Cleveland, Ohio, has been elected president of the company, succeeding his father, J. H. Van Dorn, who died recently.

W. T. Kyle has joined the sales force of The Okonite Company at their general office, 253 Broadway, New York. Mr. Kyle for the past six years has been connected with the Duplex Metals Company, Chester, Pa., as district sales manager.

F. N. Rumbley and J. W. Stjernstedt, of the Western Engineering Sales Company, Rialto building, San Francisco, Cal., have been appointed representatives of the Track Specialties Company, New York, in that city and vicinity. E. C. Gaumitz, of the Washington-Alaska Purchasing Bureau, Mutual Life building, Seattle, Wash., will represent the Track Specialties Company in that territory.

Charles W. Allen, formerly vice-president and sales manager of the Reading Specialty Company, and manager of the railway department of the Reading-Bayonne Steel Casting Company, Reading, Pa., has become connected with the Q & C Company, New York, effective October 1. Although Mr. Allen's office will be at 90 West street, New York, he will continue to reside as at present in Reading. A sketch of Mr. Allen's life and a photograph were published in the *Railway Age Gazette* of December 12, 1913, p. 1146.

National Railway Appliances Association.

The National Railway Appliances Association has issued a bulletin on the exposition to be held at the Coliseum and First Regiment Armory at Chicago on March 15 to 19, 1915, in connection with the sixteenth annual convention of the American Railway Engineering Association. The bulletin states that applications for space at this time are the same as last year. An increase of space has been asked for by some firms, and there seems to be no question in the minds of the past exhibitors as to the advisability of exhibiting in the coming year.

Westinghouse Air Brake Company

The Westinghouse Air Brake Company in the fiscal year ended July 31, 1914, had net earnings of but $3,482,994, a decrease of $2,851,785 from the $6,064,779 of 1913. The company's plants are now valued at $6,069,862. This amount has been increased from last year's total of $5,048,776, partly because of new construction and equipment and partly because of adjustments amounting to $550,165 made as a result of recent appraisals and inventories. The company, which formerly charged off depreciation on the basis of net earnings has now created a special reserve for contemplated extensions and betterments, and plans in the future to charge off depreciation at a predetermined rate as a part of the cost of production. This reserve, now amounting to $1,850,165, includes also a former reserve to cover inventory adjustments and will be held to provide for renewals, replacements, for adjustment of inventories and for extraordinary losses by fire, etc.

The company on July 31, 1914, had total assets of $30,145,827.

This amount includes the item of $6,069,862 for factories, already mentioned; real estate other than for factories of $1,870,000; patents and good will valued at $2,785,896 and investments in subsidiary companies of $8,126,329. The cash on hand as compared with that on July 31, 1913, had decreased from $4,050,495 to $4,479,096, and the accounts and bills receivable from $4,865,762 to $3,132,723. Inventories, however, had increased from $4,307,505 to $5,625,024. The company's capital stock on the same date was $17,638,467; there are no bonds outstanding. The accounts payable, amounting to $942,490 in 1913 were but $427,377. The liabilities also included the reserve of $1,850,165 above noted; a contingent liability on account of sales of $797,615, a surplus of $5,648,865 and a contingent surplus of $1,750,000 covering the excess of the par value of the capital stock of subsidiary companies over the value shown on the company's books.

The company's pension fund has now been charged off the balance sheet. On July 31 it amounted to $229,779, and $59,961 has been paid from it since its inception in October, 1908.

TRADE PUBLICATIONS

DESPATCHERS' SELECTOR SYSTEM.—The General Railway Signal Company, Rochester, N. Y., has issued pamphlet 2024, an advance notice of the company's despatchers' selective signaling system.

OVERHEAD TRAMRAIL EQUIPMENT.—The Whiting Foundry Equipment Company, Harvey, Ill., has recently issued catalog No. 111, descriptive of the company's line of overhead tramrail equipment.

TIES.—The National Steel Tie Company, Harrisburg, Pa., recently issued a 16-page booklet devoted to illustrations and the description of steel ties. It also contains a brief discussion on steel ties versus wood ties.

MONORAIL CRANES.—The Sprague Electric Works of the General Electric Company, New York, has issued bulletin No. 48,700 relating to the Sprague Electric monorail crane. The booklet contains descriptions, views and illustrations of the various monorail cranes manufactured by the company. There are also several views of typical installations showing the cranes in actual use.

SNOW FLANGERS.—The Railway Appliance Company, Chicago, has recently issued an elaborate 16-page booklet in which are described and illustrated, various types of improved Ray snow flangers. A change has been made as to the method of operating the flanger. Formerly it was raised and held up in the clear position by means of an operating rod or air pressure, and allowed to fall to the operating position by virtue of its own weight. The new flanger is forced down to the operating position by air pressure, and when air is shut off a spring raises it to the clear position.

PNEUMATIC DRILLS AND HOISTS.—The Ingersoll-Rand Company, New York, has recently issued Forms No. 8,207, 8,013 and 4,033, descriptive respectively of "Little David" Drills for metal and wood flooring, "Little David" Pneumatic Chipping, Calking and Scaling Hammers and the "Little Tugger" Air Hoist for mines, contractors, manufacturing and power plants. Each bulletin contains excellent illustrations of the tool to which it relates. It also contains views showing the method of using the latter, and in each case a few pages are devoted to showing wherein these Ingersoll-Rand tools are best adapted for the work for which they are intended.

STRUCTURAL STEEL, RAILS, AND TRACK ACCESSORIES.—The 1915 edition of the Lackawanna Steel Company's handbook has just appeared. This is one of the most valuable handbooks for railway men published by steel manufacturers, as in addition to the data on standard structural shapes it contains considerable information on rails, angle bars, track bolts, spikes, etc. It also contains the usual mathematical and structural tables for use in designing and the manufacturer's standard specifications for structural steel, boiler steel, open hearth steel blooms, billets and slabs, concrete reinforcement bars and the standard practice of sampling for check analysis. The book is well printed and bound in flexible leather, the size being that commonly adopted for handbooks which is readily adapted to desk, drafting table or field use. The book is sold at $2 a copy by the Lackawanna Steel Company, Buffalo, N. Y.

Railway Construction

ALABAMA ROADS ELECTRIC.—Work will be started soon, it is said, on the electric line from Opelika, Ala., southwest to Auburn, about 10 miles. F. Pace is chief engineer, and W. S. Lounsbury, Opelika, is interested. (April 24, p. 966.)

ATCHISON, TOPEKA & SANTA FE.—The report of this company for the year ended June 30, 1914, shows that the Minkler Southern, which was under construction at the close of the previous year, extending from Minkler, Cal., to Exeter, with a branch line connecting with the Visalia branch at Cutler, a total of 40 miles, has been completed to Exeter since the close of the year. The Northwestern Pacific, which is owned jointly with the Southern Pacific Company, is building from Willits, Cal., north to Shively, 105.64 miles, and had completed up to the first of the year 64.47 miles; during the year 29.10 additional miles were completed, leaving only about 12.07 miles still to be constructed, and at the end of the year the grading work on this remaining section was nearing completion. The company has secured 30 acres of land at Oakland, Cal., with extensive water frontage, and is now putting up necessary facilities for the handling of the increasing business. The extension of the Coleman-Lubbock line from Lubbock, Tex., to Texico, N. Mex., was completed during the year, and was opened for traffic on March 1, 1914. The mileage of second track in operation on June 30, 1914, was 974.65 miles, an increase of 76.33 miles as compared with 898.32 miles in operation at the close of the previous year.

ATLANTA & ST. ANDREWS BAY.—See St. Andrews Bay Railway & Terminal.

BRANCHVILLE & BOWMAN.—See Savannah Western.

BRUCE MINES & ALGOMA.—See Lake Huron & Northern Ontario.

EASTERN MAINE.—Final location is now being made and construction work is to be started soon, it is said, on the section from Houlton, Maine, south to Bancroft, 32 miles. The company was incorporated in Maine and started survey in 1911, for a line from Bangor northeast to Great Pond, thence north to the head of Nicatous lake and via Carroll, Prentiss, Bancroft and Haynesville to Houlton, 108 miles. G. W. Maxfield, president, Bangor.

GOODYEAR LOGGING COMPANY'S LINE.—We are told that this company is building with its own forces a 5-mile standard gage logging line from West Clallam, Wash., on Clallam bay to timberlands. About two miles of the grading work is finished and another mile is nearing completion. The company expects to begin track laying soon. James Manary, manager, and L. C. Tobias, purchasing agent, Clallam Bay, Wash.

GRAND TRUNK PACIFIC.—A contract has been given to Cavicchi & Pagano, Ottawa, Ont., it is said, for constructing a wye track at Cape Rouge, Que., and the completion of the St. Malo line for the National Transcontinental Railway.

GREAT NORTHERN.—This company has resumed work in Dawson county, Mont., and is laying track on its Newlon branch, from Newlon to Lambert, a distance of 22 miles. It is hoped to complete this work by November 1. No other construction work is contemplated in that territory during the present season.

LAKE HURON & NORTHERN ONTARIO.—A contract for the extension of the old 17-mile line, formerly the Bruce Mines & Algoma, from Bruce Mines, Ont., on Lake Huron, northerly, has been let, it is said, to the Ontario Northern Construction Company. The plans call for a line having a total length of 325 miles. G. P. McCallum, president; H. Appleton, vice-president and general manager, Bruce Mines, Ont.

MONONGAHELA VALLEY TRACTION.—A franchise has been granted this company, it is said, to build a branch from Rivesville, W. Va., northeast to Morgantown, 15 miles.

MOUNTAIN CENTRAL.—Plans are being made, it is said, to build a 12.5 mile line from Campton Junction, Ky., east to Campton. The company has a capital of $25,000, and may use both steam

and electricity as the motive power. The incorporators include F. Day, Winchester, Ky., and E. B. McGlone.

Nashville-Gallatin Interurban.—This company has under consideration the question of building a branch line, it is said, to Springfield, Tenn., from a point on the line now in operation between Nashville and Gallatin, 28 miles.

Rocky Ford & Southwestern.—An officer is quoted as saying that the plans call for building from Rocky Ford, Ga., southwest to Portal, 12 miles, and that a bridge about three-quarters of a mile long will be built over the Ogeechee river. The plans also include putting up two or three stations. H. B. Griffin, president, Rocky Ford, Ga. (September 25, p. 587.)

St. Andrews Bay Railway & Terminal.—An officer writes that work is now under way building from St. Andrews, Fla., to a point on the Atlanta & St. Andrews Bay about one mile north of Panama City. Money has been secured to complete the line, which will be about 3.5 miles long, including a wye. J. M. Willis has the contract for the grading and track laying. There will be about 25,000 cu. yd. of excavation and 15,000 cu. yd. of embankment work. The maximum grades will be 1 per cent. There will be a pile trestle 125 ft. long on the line, and a wharf is to be constructed at St Andrews. J. H. Drummond, St. Andrews, is furnishing most of the funds, and will own personally some of the trackage at the St. Andrews terminal. The main line will be operated by the Atlanta & St. Andrews Bay. A. B. Steele, president, Atlanta, Ga., and E. L. Wood, chief engineer, St. Andrews, Fla. (August 14, p. 310.)

Savannah Western.—This company, which was recently incorporated in South Carolina, to build from Estill, northeast to St. Paul, about 90 miles, has started construction work, it is said, at Bowman. It is understood that the company has an option on the Branchville & Bowman, operating a ten-mile line from Branchville northeast to Bowman, and this road may form part of the through line. The incorporators include G. H. Milligan, Charleston, S. C.; V. Walker and A. M. Rea, Newbern, N. C. (August 28, p. 408.)

RAILWAY STRUCTURES

Clearwater, Fla.—The Atlantic Coast Line has given a contract to E. W. Parker, Tampa, Fla., it is said, for putting up a brick, stone and concrete passenger station, with tile roof and floors, at Clearwater.

Montreal, Que.—The plans for the temporary station to be built by the Canadian Northern on Lagauchetiere street, Montreal, call for a three-story building, 100 ft. by 150 ft., one story to be below the street level. The new station is to be of steel and concrete construction. (July 3, p. 40.)

New York.—The New York Public Service Commission, First district, recently opened bids for the construction of the diagonal station under Forty-second street and the connecting link between the existing subway in Park avenue and the new Lexington avenue subway. The station includes a connection with the Steinway tunnel as well as the Hudson river tube and an entrance to the Grand Central Terminal. The lowest bidder was the Rapid Transit Subway Construction Company, at $3,097,000. (September 18, p. 550.)

Portland, Maine.—Bids are wanted until November 2, by the Cumberland county commissioners at Portland, Maine, for building a bridge connecting Portland and South Portland over Fore river, Portland Terminal Company Railroad and Commercial street. The proposed bridge is to be 3,527 ft. long, and there will be a short connecting viaduct 303 ft. long. It will be of reinforced concrete and structural steel construction, and will carry double tracks for the operation of street railways.

Van Buren, Maine.—The Railway Commission of Canada has approved the location plans for the line of the Van Buren Bridge Company from the terminus of the International Railway of New Brunswick, St. Leonard, N. B., to the international boundary in the middle of the St. John river, one mile. The state of Maine has already approved the location plans for the bridge and approach on the Maine side of the river in Van Buren, and for its connection with the Bangor & Aroostook. R. Payson, president, Portland, Maine. (October 17, 1913, p. 728.)

Railway Financial News

Erie.—The New York Public Service Commission, Second district has authorized the $900,000 4½ per cent equipment trust notes mentioned in these columns last week, and the notes have been taken by Drexel & Company, Philadelphia, at 97. E. H. Gary, chairman of the United States Steel Corporation, has resigned as a director of the Erie.

New York, New Haven & Hartford.—This company has begun a suit to recover $3,900,000 from John L. Billard, a former director; Edward D. Robbins, former general counsel; Samuel C. Morehouse, Charles F. Linsley, Henry Whipple and Samuel Hemmingway.

St. Louis & San Francisco.—An arrangement has been made between the receivers and the protective committee representing the Ozark & Cherokee Central by which the first mortgage 5 per cent bonds of the latter are to be extended at 5 per cent for six months and at 6 per cent for six additional months.

Southern Railway.—E. H. Gary, chairman of the United States Steel Corporation, has resigned as a director of the Southern Railway.

Toledo, Peoria & Western.—This railway, operating 248 miles, in the fiscal year ended June 30, 1914, had a net deficit after the payment of expenses, rentals, taxes and interest of $187,842 as compared with a net income of $37,672 for the year before, the change from net income to net deficit being due to a decrease in freight revenue from $826,586 to $723,351 combined with an increase in operating expenses from $1,135,248 to $1,236,155. A large part of the stock of this company is owned by the Pennsylvania Company and the Chicago, Burlington & Quincy, but it is operated independently of either. Its main line is in two sections, the eastern extending from Effner, Ill., where connection is made with the Pittsburgh, Cincinnati, Chicago & St. Louis to Peoria and the western from Hollis, Ill., eight miles from Peoria, to the Keokuk bridge, connection between the two sections being made by trackage rights over the Peoria & Pekin Union. The company also has a branch to Iona Junction, Ill., and trackage rights over the Chicago, Burlington & Quincy to Burlington, Iowa. In 1914 the company earned passenger revenue per mile of $1,963, comparing with $1,942 in 1913. The freight revenue per mile, on the other hand, dropped decidedly from $3,337 in 1913 to $2,920 in 1914, a decrease of 12.49 per cent. This revenue constitutes 56 per cent of the total and the tonnage is made up mainly of grain and bituminous coal, both of which showed decided decreases. The ton-mile rate in 1914 was 1.23 cents as against 1.28 cents in 1913, the total ton mileage being 58,649,413, as against 64,532,455 for the previous year. The average passenger receipts per passenger mile in 1914 amounted to 1.95 cents, as against 1.97 cents in 1913. At the end of the year the company had on hand working assets of $284,972; $87,990 of this being cash and $96,181 material and supplies. The working liabilities, on the other hand were $1,446,201, of which more than half, $738,000 was loans and bills payable.

A New Railway in the Federated Malay States.—A new railway line extending from Bukit Mertajam, a railway junction near the town of Penang to Alor Star, the capital of Kedah, 56 miles north of Bukit Mertajam, has recently been opened to traffic in the Federated Malay States. The line is part of the government railways and one of several extensions now under construction. This particular branch traverses nearly the entire length of the state of Kedah, its northern terminus being at the river of that name. It passes through a still slightly developed territory, and it is believed will have a very advantageous influence on the progress and opening up of that native state. The connecting up of this branch line brings the railway still closer to the Siamese frontier, the distance from Alor Star via Perlis to the frontier being 30 miles. Further progress with the view of ultimate connection with the Royal Siamese Railway, thereby forming a line from Penang to Bangkok, is looked forward to with considerable interest.

[ADVERTISEMENT.]

ANNUAL REPORTS

THE DENVER AND RIO GRANDE RAILROAD COMPANY

ST. LOUIS, Mo., September 10, 1914.

To the Stockholders of

THE DENVER AND RIO GRANDE RAILROAD COMPANY:

The Board of Directors submit the following report for the fiscal year ended June 30, 1914.

The results were as follows:

	1914.	1913.	Increase or Decrease Amount.	Per Cent.
Average Mileage Operated	2,583.27	2,555.00	28.27	1.11
OPERATING REVENUES:				
Revenue from Transportation—				
Freight	$17,058,080.21	$18,078,140.01	—$1,020,059.80	5.64
Passenger	5,077,407.62	5,299,080.89	—221,673.27	4.18
Passenger—Other	99,604,16	111,951.77	—12,347.61	11.03
Mail	308,938.97	296,454.47	12,484.50	4.21
Express	312,464.04	368,297.48	—55,833.44	15.16
Miscellaneous	194,391.11	177,122.93	17,268.18	9.75
Total Revenue from Transportation	$23,050,886.11	$24,331,047.55	—$1,280,161.44	5.26
Revenue from Operation Other than Transportation	116,165.23	121,917.31	—5,752.08	4.72
Total Operating Revenues	$23,167,051.34	$24,452,964.86	—$1,285,913.52	5.26
OPERATING EXPENSES:				
Maintenance of Way and Structures	$3,393,968.31	$3,545,938.45	—$151,970.14	4.29
Maintenance of Equipment	4,245,325.39	4,538,250.98	—292,925.59	6.45
Traffic Expenses	497,431.40	546,432.39	—49,000.99	8.97
Transportation Expenses	7,249,240.29	7,738,495.55	—489,255.26	6.32
General Expenses	632,230.60	678,054.64	—45,824.04	6.76
Total Operating Expenses	$16,018,195.99	$17,047,172.01	—$1,028,976.02	6.04
Net Operating Revenue	$7,148,855.35	$7,405,792.85	—$256,937.50	3.47
Net Deficit from Outside Operations	16,148.22	6,494.54	9,653.68	148.64
Total Net Revenue.	$7,132,707.13	$7,399,298.31	—$266,591.18	3.60
RAILWAY TAX ACCRUALS.	$1,009,143.53	$948,738.67	$60,404.86	6.37
Operating Income..	$6,123,563.60	$6,450,559.64	—$326,996.04	5.07
OTHER INCOME:				
Hire of Equipment—Credit Balance	$82,218.36	$91,652.69	—$9,434.33	10.29
Rent	200,524.78	188,427.44	12,097.34	6.42
Dividend Income	800,000.00	819,000.00	—19,000.00	2.32
Interest	180,061.58	148,842.83	31,218.75	20.97
Miscellaneous Income.	129.57	14.97	114.60	765.53
Total Other Income	$1,262,934.29	$1,247,937.93	$14,996.36	1.20
Gross Income.	$7,386,497.89	$7,698,497.57	—$311,999.68	4.05
DEDUCTIONS FROM GROSS INCOME:				
Rent	$360,088.16	$359,877.89	$210.27	0.06
Interest	5,626,034.44	5,244,440.02	381,594.42	7.28
Total Deductions..	$5,986,122.60	$5,604,317.91	$381,804.69	6.81
Net Income	$1,400,375.29	$2,094,179.66	—$693,804.37	33.13
DISPOSITION OF NET INCOME:				
Appropriations to Sinking and Renewal Funds	$263,888.82	$247,807.92	$16,080.90	6.49
Appropriations-for-Additions and Betterments	80,927.52	389,000.00	—308,072.48	79.20
Total Appropriations	$344,816.34	$636,807.92	—$291,991.58	45.85
Income Balance Transferred to Credit of Profit and Loss	$1,055,558.95	$1,457,371.74	—$401,812.79	27.57
Operating Revenue per Mile of Road	$8,968.11	$9,570.63	—$602.52	6.30
Operating Revenue per Revenue Train Mile	3.10.167	2.87.153	.23.014	8.01
Operating Expense per Mile of Road	6,200.74	6,672.08	—471.34	7.06
Operating Expense per Revenue Train Mile	2.14.456	2.00.186	.14.270	7.13
Net Operating Revenue per Mile of Road	2,767.37	2,898.55	—131.18	4.53
Net Operating Revenue per Revenue Train Mile	.95.711	.86.967	.08.744	10.05
Ratio of Operating Expense to Operating Revenue	69.14%	69.71%	—0.57%	....

CAPITAL STOCK.

There has been no change in the Capital Stock.

FUNDED DEBT.

The funded debt decreased $321,000, as exhibited in detail on page 17.

NEW LINES.

Under contract of purchase a line from Helper to Storrs, 5.09 miles, and called Spring Canyon Branch, has been acquired and was placed in operation July 15th, 1913. It serves an important coal property. By virtue of contracts there is included in the operated mileage the Southern Utah Railroad and the Castle Valley Railroad, aggregating 22.5 miles, extending from Price to Mohrland, serving extensive coal mines. Details of changes in mileage operated are recorded on page 35.

ADDITIONS AND BETTERMENTS.

A detailed list of addition and betterment charges, aggregating $1,937,570.33, appears on page 18. The following are the more important items:

There were purchased and laid in track, 1,368 tons of 90-pound section rail and 7,180 tons of 85-pound section rail, the 90-pound rail being applied to the "Detour Line" Soldier Summit to Detour; the balance was employed in replacing worn rail of similar section, or displacing lighter sections, and rail thus released was laid on less important main, branch, or narrow gauge lines.

Details of composition of track as to rail as constituted at the end of the year are shown on page 28.

Approximately 388,000 tie plates and 25,000 rail anchors were installed.

The main line roadbed was widened to standard dimensions between Littleton and Larkspur (32 miles on Colorado Lines), and between Ruby Tunnel and Utaline (11 miles on Utah Lines), which latter improvement included the riprapping of the widened roadbed at various points along the Grand River.

Rectifications of grade were made at several places, but particularly between Thistle and Castella Springs, Utah, where a ruling grade of .65 per cent was established on eastbound traffic with no adverse westbound grade.

New steel bridges aggregating 1,719 lineal feet in length were installed, replacing inadequate ones and 4,372 lineal feet of wooden bridges were eliminated by permanent filling.

The Fourth South Street Viaduct in Salt Lake City was completed and opened for traffic on January 27th, 1914.

The City of Denver, by ordinance, requires the erection of a steel structure to be known as the "Colfax-Larimer Viaduct," over freight, main line and yard tracks. This Company's proportion of the aggregate cost is estimated at $81,000. Construction was begun in the latter part of the fiscal year and $1,830.00 expended.

An ordinance also requires rearrangement of tracks and laying of brick pavement on Wynkoop Street, Denver, estimated to cost $30,400.00; expended to date, $4,500.00.

At Ogden a new freight depot and more centrally located freight terminals were completed in January.

Changes were made in the shop and terminal facilities at Salida, including installation of modern coal chutes and ash pit. Coaling facilities at Malta, Minturn and Thistle were enlarged and improved.

A new 24-stall brick engine house with 100-foot turntable, together with modern coal chutes, were constructed at Grand Junction.

A new 6-stall frame engine house with turntable was erected at Thistle, made necessary by introduction of Mallet locomotives.

New tools and machinery were installed at various shops.

Second main tracks between Castle Gate and Kyune (7.7 miles) and between Detour and Thistle (15.5 miles) were completed.

The double track detour line from Soldier Summit to Detour (a new station), intersecting the existing main line at a point about one mile west of Tucker, commenced in February, 1913, was placed in operation November 16, 1913, distance 13.96 miles. Continuous double track now extends from Helper to Thistle, 54.6 miles.

Construction of second main track from Thistle to Provo (21 miles), begun in August, 1913, is about 92 per cent completed. This is the property of the Utah Railway Company, but will be operated by this Company under the provisions of a contract dated November 1, 1913.

To facilitate operations new passing tracks were installed at two places, involving construction of 1.1 miles, and existing passing tracks were extended at various other points, involving the building of 4.5 miles of track.

Industrial sidings and yard tracks were constructed and extended to serve new industries or to make provision for growing traffic involving the building of 13 miles.

A telephone train dispatching system was installed between Grand Junction and Ogden at a cost of $37,800.

Approximately 43 miles of additional right of way fence was constructed.

OPERATION.

The total Operating Revenues were $23,167,051.34, a decrease of $1,285,913.52, or 5.26 per cent under the previous year.

The revenue from freight traffic decreased $1,020,059.80, or 5.64 per cent, largely attributable to the protracted coal strike in Southern Colorado, fruit crop failure on the Western Slope in Colorado and inactivity in the building industry reducing the demand for lumber from Southern Colorado and New Mexico territory.

The number of tons of revenue freight handled declined less than 3 per cent, although the resulting tons-one-mile decreased 6.23 per cent, due to shorter average haul of 4.43 miles.

Reference is made to the comparative commodity statement on page 33.

The revenue from passenger traffic decreased $221,673.27, or 4.18 per cent—about equally apportioned between local and through travel. The number of passengers carried decreased 1.24 per cent; the number carried one mile decreased 4.80 per cent; the average revenue per passenger per mile was 2.04 cents.

Complete details of Operating Expenses with comparisons are recorded on pages 25 and 26, the total exhibiting a decrease of $1,028,976.02, or 6.04 per cent.

Continued progress has been made in improving the condition of track and particularly as to bridges. The total charge to Maintenance of Way and Structures was $3,393,968.31, and equalled $1,314.00 per mile of road operated.

The decrease in total charges to Maintenance of Equipment amounted to $292,925.59, or 6.45 per cent. Power and cars have been well kept up, and satisfactorily met the demands of traffic.

Based upon the equipment list as it stood July 1st, 1913, the maintenance charges this year, per locomotive have equalled $2,493.20; per passenger car (exclusive of those leased to other companies), $570.76; per freight car, $84.86.

Traffic Expenses were reduced $49,000.99, or nearly 9 per cent.

Unprecedented falls of snow during the winter months, followed by unusual rain-falls later in the year, resulted in many interruptions and consequent added expense in moving traffic; likewise the strike of coal miners in Southern Colorado necessitated the purchase and long haul of a large tonnage of Utah coal for locomotive consumption in Colorado, and abnormally added to operating costs, but notwithstanding these disadvantages the total charges against Transportation Expenses were decreased $489,255.26, being in a greater ratio than the decline in Operating Revenues, i. e., 6.32 per cent versus 5.26 per cent.

The number of tons of revenue freight per freight train mile averaged 337.44 against 305.18 previous year. Freight train mileage declined 15.2 per cent. The reduction of 7.11 per cent in passenger train mileage contributed to the decrease in Transportation charges.

General Expenses present a reduction of $45,824.04, and include the first charges against "Valuation Expenses," which amount to $4,180.41.

OPERATING INCOME.

Operating Income, after sustaining an increase of more than 6 per cent in direct taxes (with a decline of 5.26 per cent in Operating Revenues), exhibits a decrease of 5.07 per cent compared with the previous year.

Net Income, distinguished from Operating Income in that it represents final results after all deductions, amounted to a decrease of 33.13 per cent against last year, but an increase of 22.33 per cent compared with two years ago.

Appropriations from Net Income were:

For contributions to the Renewal Fund and Sinking Fund under First and Refunding Mortgage	$263.888.82
For Additions and Betterments	80,927.52
Total	$344,816.34

leaving a credit brought down to Profit and Loss for the year of $1,055,558.95

With the exception of ordinary current accounts the Company has no floating debt.

In addition to the items already mentioned, the Denver and Rio Grande, in common with almost all American railroads, was adversely affected as to its tonnage and revenues by the shrinkage in the demand for manufactured and miscellaneous commodities in the general markets, and the full burden of forced revisions in tariffs in the previous year, including also some made within the year, materially reduced earnings.

At the close of the year the general crops throughout the territory, especially as to fruit, were particularly encouraging, practically guaranteeing to the growers, mainly in Colorado, splendid returns. The future augurs well also for the State of Utah, the constant development of whose coal industry, along with its horticulture and agriculture, makes for prosperity in that rapidly growing state.

The Company and its officers have undertaken to warrant the confidence of the peoples served, so that the relations between all are established on sound, substantial principles.

WESTERN PACIFIC RAILWAY.

A summary of the operations of this property for the fiscal year ending June 30th, 1914, compared with preceding year is presented:

	1913-14	1912-13	Increase or Decrease
Operating Revenue	$6,099,573.37	$6,173,628.29	—$74,054.92
Operating Expenses	4,995,891.64	4,478,835.06	517,056.58
Net Operating Revenue	$1,103,681.73	$1,694,793.23	—$591,111.50
Outside Operations—Deficit	27,152.26	11,635.28	15,516.98
Total Net Revenue	$1,076,529.47	$1,683,157.95	—$606,628.48
Taxes	379,259.40	278,096.13	$101,163.27
Operating Income	$697,270.07	$1,405,061.82	—$707,791.75
Net Debit to Income	375,763.12	364,731.75*	11,031.37
Surplus without making deductions therefrom for interest	$321,506.95	$1,040,330.07	—$718,823.12

*The figures presented in the report last year were subsequently adjusted by increasing the Net Debit to Income $19,145.76, to comply with the regulations of the Interstate Commerce Commission.

The extent to which the Company suffered in earnings by reason of the business situation in general is best indicated in the figures giving the results of its interchange with the Denver & Rio Grande, in that the combined revenue of the latter road from freight and passenger traffic to and from the Western Pacific reflects a decrease slightly in excess of 5 per cent.

The increase in total Operating Expenses was entirely attributable to necessarily heavier expenditures for maintenance both of roadway and equipment. There was a substantial decrease in Transportation Costs, in Traffic and in General Expenses.

By order of the Board of Directors.

B. F. BUSH,
President.

CONDENSED GENERAL BALANCE SHEET.

June 30, 1914, Compared with Previous Year.

ASSETS.	1914.	1913.	Increase or Decrease.
PROPERTY INVESTMENT:			
ROAD AND EQUIPMENT	$174,316,509.85	$172,351,364.26	$1,965,145.59
Reserve for Accrued Depreciation—Credit	1,952,958.59	1,432,921.27	520,037.32
Total	$172,363,551.26	$170,918,442.99	$1,445,108.27
SECURITIES:			
Securities of Proprietary, Affiliated and Controlled Companies—Pledged	$14,796,433.92	$14,316,627.39	$479,806.53
Securities of Proprietary, Affiliated and Controlled Companies — Unpledged.	207,620.00	206,820.00	800.00
Total Securities	$15,004,053.92	$14,523,447.39	$480,606.53
OTHER INVESTMENTS, at cost.	$29,263,131.45	$29,262,953.93	$177.52
TOTAL PROPERTY INVESTMENT	$216,630,736.63	$214,704,844.31	$1,925,892.32
WORKING ASSETS:			
Cash	$2,607,342.14	$2,349,346.04	$257,996.10
Securities Issued or Assumed—Held in Treasury.	2,989,130.00	2,989,130.00	
Marketable Securities	4,298,155.46	3,997,930.51	300,224.95
Loans Receivable:			
Western Pacific Railway	2,420,454.11	593,272.58	1,827,181.53
Salt Lake & Alta Railroad	14,287.50		14,287.50
Grand Valley Fruit & Water Co.	516.06		516.06
Traffic and Car Service Balances due from Other Companies	987,564.90	932,417.63	55,147.27
Net Balance due from Agents and Conductors	193,227.28	134,376.52	58,850.76
Miscellaneous Accounts Receivable:			
Western Pacific Railway	559,664.05	350,677.29	208,986.76
Other Companies	691,144.03	796,723.65	—105,579.62
Materials and Supplies	1,623,385.44	1,825,790.23	—202,404.79
Other Working Assets	12,326.07	12,043.26	282.81
TOTAL WORKING ASSETS	$16,397,197.04	$13,981,707.71	$2,415,489.33
DEFERRED DEBIT ITEMS:			
ADVANCES:			
Provisional Fund		$648,323.34	—$648,323.34
Working Funds	$9,181.66	8,759.11	422.55
Western Pacific Accrued Interest on Second Mtge. Bonds owned by D. & R. G. R. R. Co. (Unpaid).	3,125,000.00	1,875,000.00	1,250,000.00
Insurance Paid in Advance.	8,973.88	5,219.74	3,754.14
SPECIAL DEPOSITS:			
Cash Proceeds, Adjustment Mtge. 7% Bonds	478,259.35	3,803,561.45	—3,325,302.10
First and Refunding Mtge. 5% Bonds, with New York Trust Co., Trustee.	6,692,000.00	3,730,000.00	2,962,000.00
Cash and Securities in Sinking and Redemption Funds,	237,283.56	111,117.00	126,166.56
Cash and Securities in Reserve Funds	355,382.48	333,660.22	21,722.26
Other Deferred Debit Items	123,333.47	114,474.16	8,859.31
TOTAL DEFERRED DEBIT ITEMS	$11,029,414.40	$10,630,115.02	$399,299.38
	$244,057,348.07	$239,316,667.04	$4,740,681.03

LIABILITIES.	1914.	1913.	Increase or Decrease.
STOCK:			
CAPITAL STOCK:			
Common—Outstanding	$38,000,000.00	$38,000,000.00	
Preferred—Outstanding.	49,775,670.00	49,775,670.00	
Preferred—In Treasury.	4,130.00	4,130.00	
Total Stock	$87,779,800.00	$87,779,800.00	
SECURED DEBT:			
FUNDED DEBT:			
Outstanding in hands of Public	$123,644,000.00	$123,965,000.00	—$321,000.00
Held in Treasury	10,159,000.00	7,026,000.00	3,133,000.00
Total Debt	$133,803,000.00	$130,991,000.00	$2,812,000.00
TOTAL CAPITAL LIABILITIES	$221,582,800.00	$218,770,800.00	$2,812,000.00
WORKING LIABILITIES:			
Traffic and Car Service Balances	$253,974.97	$224,983.18	$28,991.79
Audited Vouchers and Wages Unpaid	1,500,322.41	1,940,184.08	—439,861.67
Misc. Accounts Payable	32,601.30	35,535.09	—2,933.79
Matured Interest Unpaid	1,854,334.72	1,673,823.46	180,511.26
Other Working Liabilities	36,165.01	42,898.27	—6,733.26
TOTAL WORKING LIABILITIES	$3,677,398.41	$3,917,424.08	—$240,025.67
ACCRUED LIABILITIES NOT DUE:			
UNMATURED INTEREST:			
Accrued Interest (Including Bond Coupons due July 1st)	$1,076,089.46	$1,082,010.88	—$5,921.42
Accrued Rental	95,519.81	105,279.06	—9,759.25
Taxes Accrued	368,637.12	370,461.83	—1,824.71
TOTAL ACCRUED LIABILITIES NOT DUE	$1,540,246.39	$1,557,751.77	—$17,505.38
DEFERRED CREDIT ITEMS:			
Operating Reserves	$21,256.96	$134,906.45	—$113,649.49
Other Deferred Credit Items	143,393.69	113,184.86	30,208.83
TOTAL DEFERRED CREDIT ITEMS	$164,650.65	$248,091.31	—$83,440.66
TOTAL LIABILITIES	$226,965,095.45	$224,494,067.16	$2,471,028.29
DEFERRED INCOME (Account of Securities Owned)	$6,152,844.45	$4,902,844.45	$1,250,000.00
APPROPRIATED SURPLUS:			
Additions since July 31, 1908, through Income	$2,519,108.00	$2,288,180.48	$230,927.52
Reserves from Income or Surplus	591,549.04	443,660.22	147,888.82
TOTAL APPROPRIATED SURPLUS	$3,110,657.04	$2,731,840.70	$378,816.34
PROFIT AND LOSS:			
Balance	$7,828,751.13	$7,187,914.73	$640,836.40
	$244,057,348.07	$239,316,667.04	$4,740,681.03

THE CHESAPEAKE AND OHIO RAILWAY COMPANY—THIRTY-SIXTH ANNUAL REPORT

RICHMOND, VA., September 17, 1914.

TO THE STOCKHOLDERS:

The Thirty-sixth Annual Report of the Board of Directors, for the fiscal year ended June 30, 1914, is herewith submitted.

The average mileage operated during the year by the Chesapeake and Ohio Lines was 2,345.8 miles, an increase over the previous year of 26.8 miles. The mileage at the end of the year was 2,367.4 miles, an increase of 29.7 miles over mileage on June 30, 1913. See schedule on page 12.

Unexpected increases in wages and taxes since 1910 now aggregate about 4½% per annum on the Company's stock, and to that extent the sum available for dividends or for improvements of the physical or other assets of the Company has been diminished.

RESULTS FOR THE YEAR.

Operating Revenues were (Increase $1,604,742.79, or 4.57%.)		$36,690,021.11
Operating Expenses were (Increase $1,202,376.47, or 4.92%.)		25,653,936.78
Net Operating Revenue was (Increase $402,366.32, or 3.78%.)		$11,036,084.33
Taxes were (Decrease $44,928.00, or 3.27%.)		1,330,934.89
Operating Income, Taxes deducted, was (Increase $447,294.32, or 4.83%.)		$9,705,149.44
Miscellaneous Income was (Decrease $71,005.49, or 3.19%.)		2,154,531.31
		$11,859,680.75
Rentals and Other Payments were (Increase $87,487.02, or 10.11%.)		953,217.12
Income for the year available for interest was (Increase $288,801.81, or 2.72%.)		$10,906,463.63
Interest (72.75% of amount available) amounted to (Increase $615,489.40, or 8.41%.)		7,934,647.84
Net Income for the year, equivalent to 4.73% on capital stock outstanding, amounted to (Decrease $326,687.59, or 9.90%.)		$2,971,815.79
Dividends paid during the year: Four dividends of 1% each, aggregating		2,511,264.00
Remainder		$460,551.79

FINANCIAL.

The changes in funded debt in the hands of the public during the year were as follows:

	Sold	Retired
5 per cent. Five Year Secured Gold Notes	$33,000,000.00	
4 per cent. Coal River Ry. First Mortgage Bonds	649,000.00	$36,000.00
4 per cent. Raleigh & Southwestern Ry. First Mortgage Bonds	510,000.00	1,000.00
4½ per cent. Equipment Trust Certificates, Series N	1,700,000.00	
Equipment Trust Obligations		1,629,392.00
4 per cent. Big Sandy Ry. First Mortgage Bonds		32,000.00
4 pepr cent. Greenbrier Ry. First Mortgage Bonds		20,000.00
4½ per cent. Three Year Secured Gold Notes.		25,000,000.00
5 per cent. One Year Secured Gold Notes		3,500,000.00
	$35,859,000.00	$30,218,392.00
Net Increase	5,640,608.00	

Other changes in obligations shown under funded debt on Balance Sheet of June 30, 1914, were:

	Increase	Payments
5 per cent. First Lien and Improvement Mortgage Bonds	$4,293,000.00	
6 per cent. Equipment Contracts — General Equipment Co.	45,500.00	$19,300.00
5 per cent. Equipment Contract — Standard Steel Car Co.	3,190,000.00	130,852.81
5 per cent. Equipment Contract—Central Locomotive and Car Works	95,250.00	
6 per cent. Equipment Contract—American Locomotive Co.	446,590.00	
	$8,070,340.00	$150,152.81
Net Increase	7,920,187.19	

The five per cent. First Lien and Improvement Mortgage Bonds were issued during the year for additions and betterments and other capital purposes. The entire issue of these bonds, $37,123,000 face amount, is pledged as collateral for your Company's Five Year 5% Secured Gold Notes, of which Notes $33,000,000 were sold to provide funds for the retirement of the Notes which matured June 1, 1914, and for new equipment, improvements and other acquisitions. Coal River Railway Company and Raleigh and Southwestern Railway Company bonds were sold to reimburse the Company's treasury for expenditures previously made.

In March and April, 1910, your Company purchased certain shares of stock of The Kanawha and Michigan Railway Company from the Lake Shore and Michigan Southern Railway Company and others, at a cost for the 40,292 shares now owned by your Company of $2,901,024, upon the par value of which dividends have been received at the rate of five per cent. per annum, with an additional one per cent. paid during the fiscal year 1913. Under a decree handed down March 14, 1914, by the circuit judges in equity, in the United States District Court for the Southern District of Ohio, Eastern Division, in the case of United States of America vs. Lake Shore and Michigan Southern Railway Company, et al., the sale of this stock was ordered. The Lake Shore and Michigan Southern Railway Company owned a like amount of this stock, and the court held that this ownership by the two companies of a majority of the stock of The Kanawha and Michigan Railway Company was in violation of the Federal anti-trust law. Accordingly, your Company has sold its holdings of stock of The Kanawha and Michigan Railway Company to the Toledo and Ohio Central Railway Company as of June 1, 1914, and is to receive therefor $4,029,200 with interest from June 1, 1914, to the date of consummation of the sale and transfer of the stock, payment to be made $2,000,000 in cash and the remainder in a note of The Toledo and Ohio Central Railway Company maturing September 1, 1915, guaranteed by the Lake Shore and Michigan Southern Railway Company, and otherwise fully secured. This represents a profit to your Company of about $1,100,000. Inasmuch as this stock of The Kanawha and Michigan Railway Company has been deposited under your Company's First Lien and Improvement Mortgage, the proceeds of this sale will be deposited with the Trustee under that mortgage, and can be expended for improvements and investments which are permitted under the terms of that mortgage.

During the past five years your Company's increase in capital liabilities in hands of the public, its principal acquisitions of stocks and bonds of other companies, and its expenditures for equipment, branch line construction, second track, and other additions and betterments have been as follows:

	Par Value		
CAPITAL OBLIGATIONS ISSUED OR ASSUMED:			
General Mortgage 4½% Bonds	$3,716,000.00		
First Consolidated Mortgage 5% Bonds	2,000,000.00		
Convertible 4½% Debentures	31,390,000.00		
Three Year 4½% Collateral Trust Notes	25,000,000.00		
One Year 5% Collateral Trust Notes	3,500,000.00		
Five Year 5% Collateral Trust Notes	33,000,000.00		
Coal River Railway Co. First Mortgage 4% Bonds	3,000,000.00		
Raleigh and Southwestern Railway Co. First Mortgage 4% Bonds	860,000.00		
Big Sandy Railway Co. First Mortgage 4% Bonds	229,000.00		
Virginia Air Line Railway Co. First Mortgage 5% Bonds	900,000.00		
Equipment Trust Certificates Series N	1,700,000.00		
Equipment Contracts	3,777,340.00		
	$109,072,340.00		
Realizing		$103,489,665.00	
Less:			
CAPITAL OBLIGATIONS PAID OR PURCHASED:			
Peninsula Division First Mortgage 6% Bonds maturing January 1, 1911	$2,000,000.00		
Greenbrier and New River Railroad Co. First Mortgage 5% Bonds redeemed February 1, 1911	339,000.00		
General Funding and Improvement Mortgage 5% Bonds	7,302,000.00		
Greenbrier Railway Co. First Mortgage 4% Bonds retired November 1, 1911	2,000.00		
Three Year 4½% Collateral Trust Notes	25,000,000.00		
One Year 5% Collateral Trust Notes	3,500,000.00		
Equipment Trust Payments	9,673,392.00		
Through Sinking Funds:			
Big Sandy Railway Co. First Mortgage 4% Bonds	244,000.00		
Coal River Railway Co. First Mortgage 4% Bonds	121,000.00		
Greenbrier Railway Co. First Mortgage 4% Bonds	98,000.00		
Raleigh and Southwestern Railway Co. First Mortgage 4% Bonds	15,000.00		
	$48,294,392.00		
Costing		48,601,686.33	
			$54,887,978.67
ACQUISITIONS:			
Stocks of:			
The C. & O. Railway Co. of Indiana	$5,898,800.00		
Elkhorn and Beaver Valley Railway Co.	30,000.00		
Gauley and Meadow River Railroad Co.	116,300.00		
The Hocking Valley Railway Co.	7,671,800.00		
The Kanawha and Michigan Railway Co.	4,029,200.00		
Logan and Southern Railway Co.	280,600.00		
Levisa River Railroad Co. (of Ky.)	50,000.00		
The Levisa River Railroad Co. (of Va.)	50,000.00		
Kanawha Bridge and Terminal Co.	400,000.00		
Silver Grove Land and Building Co.	200,000.00		
White Sulphur Springs, Incorporated	2,357,000.00		
First National Bank Building Corporation (Richmond, Va.)	180,000.00		
Miscellaneous	12,300.00		
	$21,276,000.00		
Costing		$21,506,146.39	
Bonds of:			
The C. & O. Railway Co. of Indiana First Mortgage 5%	$6,700,000.00		
Elkhorn and Beaver Valley Railway Co. First Mortgage 5%	980,000.00		
	$7,680,000.00		
Costing		6,380,500.00	
Properties of:			
Coal River Railway Co.	$2,304,359.88		
Raleigh and Southwestern Railway Co.	816,562.42		
Virginia Air Line Railway Co.	1,071,947.12		
Costing		4,192,869.42	

Construction of:			
Extensions of Branch Lines, costing	$1,548,551.64		
Second Track (173.1 miles) and Additions and Betterments, costing	14,143,025.86		
(Excluding $2,119,704.98 expended on Chicago Line to April 30, 1914, for which securities have been acquired.)			
		15,691,577.50	
Equipment:			
Additional equipment acquired (less retirals)		16,875,111.91	
(Excluding $44,236.77 expended on Chicago Line to April 30, 1914, for which securities have been acquired.)			
Costing			$64,646,205.22

Your Company acquired during the year additional shares of stock of White Sulphur Springs, Incorporated of Logan and Southern Railway Company and of Gauley and Meadow River Railroad Company, and exchanged a part of its holdings of common stock of Elkhorn and Beaver Valley Railway Company for a like amount of preferred stock which was later surrendered for first mortgage bonds at par. Additional first mortgage bonds of Elkhorn and Beaver Valley Railway Company were acquired at par in reimbursement for advances made that Company for construction purposes. Further shares of stock and first mortgage bonds of The Chesapeake and Ohio Railway Company of Indiana were issued in respect of the cost of certain additions and betterments made to that line, and were pledged under your Company's First Lien and Improvement Mortgage.

A statement of charges to property accounts will be found on page 16, showing a net addition of $17,058,584.66, that is, $1,834,867.10 was added to cost of road, and $15,223,717.56 was added to cost of equipment. This includes equipment represented by securities of The Chesapeake and Ohio Equipment Corporation heretofore carried in securities owned account but transferred to cost of equipment this year, amounting to $11,166,743.30.

A schedule of securities owned June 30, 1914, will be found on page 17.

GENERAL REMARKS.

The equipment inventory as of June 30, 1914, was as follows:

Locomotives owned	586	Inc. 50
Locomotives leased	239	Dec. 36
Total	825	Inc. 14
Passenger train cars owned	366	Inc. 18
Passenger train cars leased	29	.. ..
Total	395	Inc. 18
Freight train and miscellaneous cars owned	22,308	Inc. 652
Freight train cars leased	22,322	Inc. 267
Total	44,630	Inc. 919

The changes during the year in the accrued depreciation of equipment account were as follows:

Balance to credit of account June 30, 1913			$3,503,348.90
Amount credited during year ended June 30, 1914, by charges to:			
Operating expenses	$797,888.28		
Outside operations expenses	19,474.74		
		$817,363.02	
Charges to account for:			
Accrued depreciation on equipment retired during year—			
20 locomotives, 4 passenger, 1,521 freight and work cars and 1 tug	$103,584.37		
Accrued depreciation on cars changed in class during year	4,585.62		
		108,169.99	
			709,193.03
Balance to credit of account June 30, 1914			$4,212,541.93

	1914	1913	Increase
Operating Revenues amounted to	$36,690,021.11	$35,085,278.32	$1,604,742.79
Net Operating Revenue	$11,036,084.33	$10,633,718.01	$402,366.32
Operating Ratio	69.9%	69.7%	.2%
Tons of Revenue Freight carried one mile	7,064,650,082	6,694,879,287	369,770,795
Revenue train load, tons	870	843	27
Revenue tons per loaded car	30.9	29.8	1.1

At Newport News, Virginia, the Atlantic tidewater terminus of your Company, an all steel dumping pier has been constructed, one side of which was completed and put into operation June 1, 1914. This pier is electrically operated and equipped with every modern appliance for the expeditious loading of coal into cargo vessels and bunkers. The cost of this pier, with its accompanying facilities, is about $1,630,000, nearly all of which has been expended at the close of the fiscal year. The pier has a rated capacity of 5,000 tons per hour when both sides are in operation, the road cars being dumped into conveyor cars which are lifted to the top of the pier by electric elevators, and the service which your Company can give at this pier promises a record for fast transferring of coal from the railway car to vessels.

In view of the desirability of providing a connection from your Company's main line at or near Portsmouth, on the Ohio River, to the main line of The Hocking Valley Railway Company at or near Columbus, Ohio, in order to facilitate the constantly increasing shipments of coal to the Lakes and the northwest, The Chesapeake and Ohio Northern Railway Company has been incorporated in Kentucky.

Extensions of the Gauley Branch, and of Logan and Southern Railway and construction of Elkhorn and Beaver Valley Railway aggregating 31.6 miles have been completed.

The revenue coal and coke tonnage was 19,251,488, an increase of 17.7 per cent.; other freight tonnage was 8,470,527, a decrease of 3.9 per cent. Total tonnage was 27,722,015 tons, an increase of 10.1 per cent. Freight revenue was $28,866,516.16, an increase of 4.8 per cent. Freight train mileage was 8,119,349 miles, an increase of 2.3 per cent. Revenue ton miles were 7,064,650,082, an increase of 5.5 per cent. Ton mile revenue was 4.09 mills, a decrease of 0.7 per cent. Revenue per freight train mile was $3.555, an increase of 2.4 per cent. Revenue tonnage per train mile was 870 tons, an increase of 3.2 per cent.; including Company's freight, the tonnage per train mile was 927 tons, an increase of 2.9 per cent. Tonnage per locomotive, including Company's freight, was 827 tons, an increase of 4.7 per cent. Revenue tonnage per loaded car was 30.9 tons, an incerase of 3.7 per cent. Tons of revenue freight carried one mile per mile of road were 3,011,617, an increase of 4.3 per cent.

There were 6,491,256 passengers carried, an increase of 10.8 per cent. The number carried one mile was 291,653,817, an increase of 9.2 per cent. Passenger revenue was $6,098,058.96, an increase of 4.1 per cent. Revenue per passenger per mile was 2.091 cents, a decrease of 4.7 per cent. Number of passengers carried one mile per mile of road was 124,330, an increase of 8.0 per cent. Passenger train mileage was 5,230,376, an increase of 0.2 per cent. Passenger revenue per train mile was $1.166, an increase of 3.9 per cent.; including mail and express, it was $1.369, an increase of 4.4 per cent. Passenger service train revenue per train mile was $1.401, an increase of 3.9 per cent.

There were 13,645.5 tons of new rails (4,280.4 tons 100-lb. and 9,365.1 tons 90-lb.), equal to 93.5 track miles, used in the renewal of existing main tracks.

The average amount expended for repairs per locomotive operated was $2,738.18; per passenger train car, $802.74; per freight train car, $73.83.

The Board takes this occasion to make appreciative acknowledgment of efficient services of officers and employes during the year.

By order of the Board of Directors.

GEO. W. STEVENS,
President.

FRANK TRUMBULL,
Chairman.

GENERAL INCOME ACCOUNT.

For Year ended June 30, 1914, and Comparison with Year ended June 30, 1913.

TABLE 2.

OPERATING REVENUES.	1914.	1913.	Increase or Decrease.	Per Cent.
Freight Traffic	$28,866,516.16	$27,549,696.17	$1,316,819.99	4.8
Passenger Traffic	6,098,058.96	5,858,138.22	239,920.74	4.1
Transportation of Mails.	426,967.03	386,639.91	40,327.12	10.4
Transportation of Express	636,785.75	599,344.74	37,441.01	6.2
Other Transportation	379,500.73	396,978.48	—17,477.75	4.4
Non-Transportation	282,192.48	294,480.80	—12,288.32	4.2
Total operating Revenues	$36,690,021.11	$35,085,278.32	$1,604,742.79	4.6
OPERATING EXPENSES.				
Maintenance of Way and Structures	$4,138,091.55	$4,342,744.60	—$204,653.05	4.7
Maintenance of Equipment	7,692,748.18	7,275,439.48	417,308.70	5.7
Traffic	669,283.00	669,016.32	266.68	.0
Transportation	12,167,905.54	11,380,998.32	786,907.22	6.9
General	985,908.51	783,361.59	202,546.92	25.9
Total Operating Expenses	$25,653,936.78 69.9%	$24,451,560.31 69.7%	$1,202,376.47	4.9
Net Operating Revenue	$11,036,084.33	$10,633,718.01	$402,366.32	3.8
INCOME FROM OTHER SOURCES:				
Hire of Equipment	$684,832.80	$598,740.44	$86,092.36	14.4
Interest from Investments and Accounts	1,168,027.93	1,322,328.25	—154,300.32	11.7
Miscellaneous	301,670.58	304,468.11	—2,797.53	.9
	$2,154,531.31	$2,225,536.80	—$71,005.49	3.2
Gross Income	$13,190,615.64	$12,859,254.81	$331,360.83	2.6
DEDUCTIONS FROM GROSS INCOME:				
Interest on Debt	$7,934,647.84	$7,319,158.44	$615,489.40	8.4
Taxes	1,330,934.89	1,375,862.89	—44,928.00	3.3
Rentals Leased Roads, Joint Tracks, &c.	835,077.32	883,223.55	—48,146.23	5.5
Loss on C. & O. Grain Elevator	62,616.28	Cr. 17,493.45	80,109.73	457.9
Miscellaneous	55,523.52	.....	55,523.52	...
Total deductions	$10,218,799.85	$9,560,751.43	$658,048.42	6.9
NET INCOME	$2,971,815.79	$3,298,503.38	—$326,687.59	9.9

Amount to credit of Profit and Loss June 30, 1913			$2,514,680.78
Amount of Net Income for year ended June 30, 1914, transferred to Profit and Loss			2,971,815.79
			$5,486,496.57
Deduct:			
Dividend No. 28 of 1% paid September 30, 1913.		$627,816.00	
Dividend No. 29 of 1% paid December 31, 1913.		627,816.00	
Dividend No. 30 of 1% paid March 31, 1914		627,816.00	
Dividend No. 31 of 1% paid June 30, 1914		627,816.00	
			$2,511,264.00
			$2,975,232.57
Discounts on Bonds and Equipment Notes sold during year	$414,771.80		
Value of property abandoned prior to current year	795,633.89		
Refunds under West Virginia two cent fare law	311,300.00		
		$1,521,705.69	
Less:			
Sundry adjustments		108,306.51	
			$1,413,399.18
Balance to credit of Profit and Loss June 30, 1914			$1,561,833.39

GENERAL BALANCE SHEET JUNE 30, 1914.

ASSETS

(Excluding Stocks and Bonds owned of The C. & O. Ry. Co. of Indiana and of The C. & O. Equipment Corporation.)

TABLE 3.

Property Investment.		
Cost of Road	$170,865,451.08	
Cost of Equipment	47,932,910.59	
		$218,798,361.67
Accrued Depreciation of Equipment—Cr.		4,212,541.93
		$214,585,819.74
Securities of Proprietary, Affiliated and Controlled Companies—Pledged.		
Stocks—See Schedule, page 18	$13,759,738.62	
Bonds—See Schedule, page 18	3,079,408.01	
	$16,839,146.63	
Securities—Issued or Assumed—Pledged.		
Bonds—See Schedule, page 18 (Includes First Lien and Improvement Mortgage 5% Bonds $37,123,000.00. See Contra.)	37,123,001.00	$53,962,147.63
Miscellaneous Investments.		
Physical Property		282,386.44
Special Funds, and Funded Debt Issued and Reserved.		
Potts Creek Branch—Cash	$42,338.75	
Raleigh and Southwestern Railway Bonds authenticated in advance of construction.	40,000.00	
Special Deposits account of Construction and Equipment	2,340,739.07	2,423,077.82
		$56,667,611.89
		$271,253,431.63
Working Assets.		
Cash in Treasury	$1,005,380.47	
Cash in transit	787,577.26	$1,792,957.73
Cash deposits to pay Interest and Dividends		816,467.12
Cash deposits to pay Equipment Trust Principal		112,000.00
Cash deposits to pay Matured Bonds and Scrip		65,174.17
Loans and Bills Receivable		211,560.00
Traffic Balances		984,393.12
Agents and Conductors		877,045.08
Miscellaneous Accounts Receivable		1,084,148.60
Other Working Assets		34,805.10
		$5,978,550.92
Materials and Supplies		2,879,642.62
Securities in Treasury—Unpledged.		
Stocks—See Schedule, page 17	$4,711,748.77	
Bonds—See Schedule, page 17	1,497,902.00	6,209,650.77
Deferred Assets.		
Unmatured Interest and Dividends	$107,490.94	
Advances to Proprietary, Affiliated and Controlled Companies	163,492.85	
Advances, Working Funds (Fast Freight Lines, etc.)	37,628.83	
Special Deposits with Trustees, Various Mortgage Funds	80,046.28	
Cash and Securities in Sinking and Redemption Fund	47,097.07	
Cash and Securities in Insurance Reserve Fund	9,239.13	
Unextinguished Discount on Funded Debt.	1,622,500.00	
Sundry Accounts	570,347.73	2,637,842.83
		$17,705,687.14
Total		$288,959,118.77

LIABILITIES

(Excluding Stocks and Bonds owned of The C. & O. Ry. Co. of Indiana and of The C. & O. Equipment Corporation.)

Capital Stock.		
Common	$62,792,600.00	
First Preferred	3,000.00	
Second Preferred	200.00	$62,795,800.00
Common—The Chesapeake and Ohio Railway Co. of Indiana		1,200.00
		$62,797,000.00
Funded Debt.		
First Mortgage, Kineon Coal Co., 5% Bonds, 1915	$200,000.00	
Secured Gold Notes, 5%....1919	33,000,000.00	
First Mortgage, Terminal, etc., 6% Bonds, 1922	142,000.00	
General Funding and Improvement, 5% Bonds....1929	3,698,000.00	
Convertible, 4½% Bonds....1930	31,390,000.00	
First Mortgage, R. & S. W. Railway, 4% Bonds....1936	885,000.00	
First Consolidated Mortgage, 5% Bonds, 1939	29,858,000.00	
First Mortgage, Craig Valley Branch, 5% Bonds....1940	650,000.00	
First Mortgage, Greenbrier Railway, 4% Bonds....1940	1,821,000.00	
First Mortgage, Warm Springs Branch, 5% Bonds....1941	400,000.00	
First Mortgage, Big Sandy Railway, 4% Bonds....1944	4,756,000.00	
First Mortgage, Paint Creek Branch, 4% Bonds....1915	539,000.00	
First Mortgage, Coal River Railway, 4% Bonds....1945	2,879,000.00	
First Mortgage, Potts Creek Branch, 4% Bonds....1946	600,000.00	
First Mortgage, Va. Air Line Railway, 5% Bonds....1952	900,000.00	
First Mortgage, R. & A. Division, 4% Bonds....1989	6,000,000.00	
Second Mortgage, R. & A. Division, 4% Bonds....1989	1,000,000.00	
General Mortgage, 4½% Bonds....1992	48,129,000.00	$166,847,000.00
Equipment Trust Obligations and Contract.		8,381,971.19
		$175,228,971.19
		$238,025,971.19
First Lien and Improvement Mortgage, 5% Bonds (see Contra)....1930		37,123,000.00
		$275,148,971.19
Working Liabilities.		
Loans and Bills Payable	$95,000.00	
Traffic Balances	364,793.58	
Audited Vouchers and Pay Rolls	4,059,865.32	
Unpaid Wages	50,936.47	
Miscellaneous Accounts Payable	229,240.25	
Interest and Dividends Unpaid	818,927.65	
Matured Mortgage and Secured Debt Unpaid	65,174.17	
Other Working Liabilities	89,940.74	$5,773,878.18
Deferred Liabilities.		
Unmatured Interest and Rents	$1,905,602.71	
Taxes Accrued	1,132,168.35	
Sundry Accounts	425,958.84	3,463,729.90
		$9,237,608.08
Appropriated Surplus.		
Additions to Property through Income since June 30, 1907	$2,984,365.23	
Reserve Invested in Sinking Fund	17,101.75	
Reserve Invested in Other Reserve Funds.	9,239.13	$3,010,706.11
Profit and Loss Balance		1,561,833.39
		$4,572,539.50
Total		$288,959,118.77

This Company is also liable as a guarantor of the following securities in hands of the public—	
The Chesapeake and Ohio Grain Elevator Co., First Mortgage, 4% Bonds due 1938	$820,000.00
Norfolk Terminal and Transportation Co., First Mortgage 5% Bonds due 1948	500,000.00
Western Pocahontas Corporation, First Mortgage 4½% Bonds due 1945	750,000.00
Western Pocahontas Corporation, Extension Mortgage No. 1, 4½% Bonds due 1945	83,000.00
Western Pocahontas Corporation, Extension Mortgage No. 2, 4½% Bonds due 1946	51,000.00
Louisville and Jeffersonville Bridge Co. Mortgage (C. & O. prop'n, ½) 4% Bonds due 1943	4,500,000.00
Richmond-Washington Co. Collateral Trust Mortgage (C. & O. prop'n, 1/6) 4% Bonds due 1943	10,000,000.00

THE HOCKING VALLEY RAILWAY COMPANY—FIFTEENTH ANNUAL REPORT

Columbus, Ohio, September 17, 1914.

To the Stockholders:

The Fifteenth Annual Report of the Board of Directors, for the fiscal year ended June 30, 1914, is herewith submitted.

The average mileage operated during the year was 351.5 miles. The mileage at the end of the year was 351.5 miles. See schedule on page 8.

RESULTS FOR THE YEAR.

Operating Revenues were (Decrease $796,498.79 or 10.19%.)	$7,021,145.07
Operating Expenses were (Decrease $180,096.61 or 3.61%.)	4,803,746.51
Net Operating Revenue was (Decrease $616,402.18 or 21.75%.)	$2,217,398.56
Taxes were (Decrease $26,763.73 or 5.60%.)	451,136.27
Operating Income, Taxes deducted, was (Decrease $589,638.45 or 25.03%.)	$1,766,262.29
Miscellaneous Income was (Decrease $323,558.67 or 41.89%.)	448,919.90
	$2,215,182.19
Rentals and other payments were (Increase $13,133.02 or 13.43%.)	110,938.43
Income for the year available for interest was (Decrease $926,330.14 or 30.57%.)	$2,104,243.76
Interest (54.58% of amount available) amounted to (Increase $34,333.05 or 3.08%.)	1,148,503.05
Net Income for the year amounted to (Decrease $960,663.19 or 50.13%.)	$ 955,740.71
Dividends paid during the year: Four dividends of 2% each, aggregating	879,960.00
Remainder	$ 75,780.71

FINANCIAL.

The changes in funded debt shown by balance sheet of June 30, 1914, as compared with June 30, 1913, consisted in the retirement of $14,000 par amount of The Hocking Valley Railway Company First Consolidated Mortgage 4½% Bonds through the sinking fund; in the annual payments of $316,000 on equipment trusts; in the retirement of $4,000,000 face amount two-year 4½% gold notes by the issue and sale of $4,000,000 face amount one-year 5% gold notes maturing November 1, 1914; and in the sale of $1,800,000 face amount of equipment trust obligations to provide funds for the purchase of 2,000 steel gondola cars of 115,000 pounds capacity, 6 Mikado freight locomotives, and 2 ten-wheel passenger locomotives.

Your Company acquired 3,872 shares of The Toledo Terminal Railroad Company capital stock under an agreement with other interested companies providing that the companies holding the stock will be responsible (severally but not jointly) for any deficiency in working expenses and in interest on $4,000,000 First Mortgage 4½% Bonds of The Toledo Terminal Railroad Company in the proportion which the stock held by each company bears to the total stock outstanding, your Company's proportion being 9.68%.

An analysis of the property accounts will be found on pages 12 and 13, by reference to which it will be seen that additions and betterments were made during the year to the amount of $2,966,061.09, of which $1,122,490.87 was added to cost of road, and $1,843,570.22 was added to cost of equipment.

During the past five years your Company's expenditures for equipment and other additions and betterments have been as follows:

Additional equipment acquired (less retirals)	$2,931,182.75
Additions and Betterments	3,259,745.68
	$6,190,928.43

GENERAL REMARKS.

The equipment in service June 30, 1914, consisted of:

Locomotives owned	148	Decrease	1
Locomotives leased under equipment trusts	8	Increase	8
Total	156	Increase	7
Passenger train cars owned	86	Decrease	2
Freight train and miscellaneous cars owned	9,655	Increase	227
Freight train cars leased under equipment trusts	4,556	Increase	1,206
Total freight train cars	14,211	Increase	1,433

The prolonged strike by coal miners in the Hocking district, causing almost entire suspension of mining during April, May and June in the territory covered by your line, resulted in a heavy loss of freight traffic and earnings sa follows:

	1914.	1913.	Decrease.
Tons of revenue freight carried one mile	1,315,425,895	1,453,682,875	138,256,980
Operating revenues	$7,021,145.07	$7,817,643.86	$796,498.79
Net operating revenue	$2,217,398.56	$2,833,800.74	$616,402.18

The revenue train load increased from 988 to 1,000 tons, and revenue tons per loaded car from 36.3 to 36.9 tons.

Steel water tanks were built at Marion, Upper Sandusky and Toledo and modern water softening plants were erected at Carey, Marion, Hyatts and Linworth. The work of separating grades at South Columbus, required by the city authorities of Columbus, was completed and the South Columbus freight station remodeled. At Marion a suitable site was purchased for engine house.

The operation of the new coal dock and terminal yard on the east side of the Maumee River at Toledo, undertaken last year, was commenced on June 17, 1914. The dock is equipped with two car dumpers, which are operated by steam power, the maximum capacity of the dumpers being 8,000 tons per hour, which is about double the present needs of the Company. The coal is dumped directly from the road cars into vessels. The terminal yard tributary to the dock has fifteen and one-half miles of track with a working capacity of 1,500 cars, and is capable of considerable enlargement. The cost of the new dock and terminal, exclusive of a large part of the real estate which has been owned by your Company for many years, is about $1,450,000, nearly all of which has been expended at the close of the fiscal year, this expenditure forming the major part of the additions and betterments, except equipment, for the past two years. It was necessary to change the grade of two important streets in the city of Toledo; Front street being elevated over and Seaman street being carried under tracks of your Company. It was also necessary to elevate tracks of Wheeling and Lake Erie Belt Railway at the entrance to the terminal yard. The new dock is directly across the river from the dock heretofore used and is better located than any other railroad dock in Toledo, being nearer the mouth of the river, and is readily accessible to your Company's line over the double track of the Toledo Terminal Railroad, an interest in which has been acquired by your Company, as hereinbefore stated. Your Company is under contract to sell the old location to the Pennsylvania Company, which owns the adjoining water front, and it is expected that a very considerable sum will be realized from the sale of this valuable dock property.

The coal and coke tonnage was 7,323,139 tons, a decrease of 8.1%; other freight tonnage was 3,163,909 tons, a decrease of 1.6%. Total tonnage

GENERAL BALANCE SHEET, JUNE 30, 1914.

TABLE 3.

ASSETS.

Property Investment.			
Cost of Road	$29,586,170.38		
Cost of Equipment	13,620,329.60		
General Expenditures	23,363.35		
	$43,229,863.33		
Accrued Depreciation of Equipment—Cr.	1,019,628.37	$42,210,234.96	
Securities of Proprietary, Affiliated and Controlled Companies—Pledged.			
Stocks	108,088.66		
Bonds	300,000.00	408,088.66	
Securities of Proprietary, Affiliated and Controlled Companies —Miscellaneous—Unpledged		5,808.00	
Other Investments.			
Miscellaneous Investments—Securities—Pledged		1,566,718.24	
Special Deposit account Equipment		800,000.00	$44,990,849.86
Working Assets.			
Cash	$ 973,423.81		
Loans and Bills Receivable	102,346.46		
Traffic Balances	50,060.15		
Agents and Conductors	361,502.28		
Miscellaneous Accounts Receivable	338,594.82		
Other Working Assets	17,996.63	$ 1,843,924.15	
Materials and Supplies		784,299.47	
Securities in Treasury—Unpledged.			
Stocks	$ 501.00		
Bonds	2,785,000.00	2,785,501.00	
Deferred Assets.			
Unmatured Interest	$ 35,312.50		
Advances to Proprietary, Affiliated and Controlled Companies	53,163.63		
Advances, Working Funds	771.69		
Insurance, paid in advance	3,852.91		
Cash and Securities in Sinking and Redemption Funds	29,836.99		
Cash and Securities in Insurance Fund	34,703.07		
Other Deferred Debit Items	66,433.49	224,074.28	5,637,798.90
Total			$50,628,648.76

LIABILITIES.

Capital Stock			$11,000,000.00
Funded Debt.			
First Consolidated Mortgage 4½% Bonds, 1999	$16,030,000.00		
First Mortgage C. & H. V. R. R. 4% Bonds, 1948	1,401,000.00		
First Mortgage Cols. & Tol. R. R. 4% Bonds, 1955	2,441,000.00		
One Year 5% Gold Notes, 1914	4,000,000.00	$23,872,000.00	
Equipment Trust Obligations		2,823,000.00	26,695,000.00
			$37,695,000.00
Working Liabilities.			
Loans and Bills Payable	$ 1,400,000.00		
Traffic Balances	498,669.49		
Audited Vouchers and Wages Unpaid	648,871.69		
Miscellaneous Accounts Payable	92,023.69		
Matured Interest, Dividends and Rents Unpaid	368,826.50		
Other Working Liabilities	48,405.60	$ 3,056,796.97	
Deferred Liabilities.			
Unmatured Interest, Dividends and Rents Payable	$ 138,616.68		
Taxes Accrued	284,506.36		
Operating Reserves	17,516.68		
Other Deferred Credit Items	344,388.55	785,028.27	3,841,825.24
Appropriated Surplus.			
Additions to Property through Income since June 30, 1907	$ 181,409.11		
Reserve Invested in Sinking Fund	190,097.14		
Reserve Invested in Insurance Fund	34,703.07	$ 406,209.32	
Profit and Loss—Balance		8,685,614.20	9,091,823.52
Total			$50,628,648.76

This Company, jointly with the Toledo and Ohio Central Railway Company, guaranteed in 1901 5% First Mortgage Bonds of the Kanawha and Hocking Coal and Coke Company due 1951 ($2,878,000 outstanding), and in 1902 5% First Mortgage Bonds of the Continental Coal Company due 1952 ($1,604,000 outstanding). The Ohio courts, in quo warranto proceedings in which bondholders were not represented, have pronounced these guaranties *ultra vires*.

was 10,487,048 tons, a decrease of 6.2%. Freight revenue was $5,601,381.91, a decrease of 12%. Freight train mileage was 1,315,637 miles, a decrease of 10.6%. Revenue ton miles were 1,315,425,895, a decrease of 9.5%. Ton mile revenue was 4.26 mills, a decrease of 2.7%. Revenue per freight train mile was $4.258, a decrease of 1.6%. Revenue tonnage per train mile was 1,000 tons, an increase of 1.2%; including Company's freight, the tonnage per train mile was 1,036 tons, an increase of 1.3%. Tonnage per locomotive, including Company's freight, was 901 tons, an increase of 4.5%. Revenue tonnage per loaded car was 36.9 tons, an increase of 1.7%. Tons of revenue freight carried one mile per mile of road were 3,742,321, a decrease of 9.5%.

There were 2,156,150 passengers carried, a decrease of 5.3%. The number of passengers carried one mile on steam trains was 49,193,241, a decrease of 6.5%. Passenger revenue was $910,310.72, a decrease of 2.1%. Revenue per passenger per mile of steam trains was 1.804 cents, an increase of 4.8%. The number of passengers carried on steam trains one mile per mile of road was 139,952, a decrease of 6.5%. Passenger train mileage of steam trains was 778,581, a decrease of 4.5%. Passenger revenue per train mile of steam trains was $1.14, an increase of 2.6%; including mail and express it was $1.296, an increase of 1.5%. Passenger service train revenue per train mile was $1.35, an increase of 1.7%.

There were 2,268 tons of new 100-lb. rails, equal to 14.4 track miles, and 1,603 tons of new 90-lb. rails, equal to 11.3 track miles, used in the renewal of existing main tracks.

The average amount expended for repairs per locomotive was $1,968.67; per passenger train car $436.14; per freight train car $62.20.

Appreciative acknowledgment is hereby made of efficient services during the year of officers and employees.

By order of the Board of Directors:

GEO. W. STEVENS,
President.

FRANK TRUMBULL.
Chairman.

NINETEENTH ANNUAL REPORT OF THE ATCHISON, TOPEKA & SANTA FE RAILWAY COMPANY

OFFICE OF
THE ATCHISON, TOPEKA & SANTA FE RAILWAY SYSTEM,
No. 5 Nassau Street, New York City.

SEPTEMBER 15, 1914.

To the Stockholders:

Your Directors submit the following report for the fiscal year July 1, 1913, to June 30, 1914, inclusive.

The Lines comprising the Atchison System, the operations of which are embraced in the following statements, are as follows:

	June 30, 1914.	June 30, 1913.
Atchison, Topeka & Santa Fe Railway	8,339.72 miles.	8,237.55 miles.
Rio Grande, El Paso & Santa Fe Railroad	20.22 "	20.21 "
Gulf, Colorado & Santa Fe Railway	1,595.89 "	1,595.77 "
Pecos & Northern Texas Railway	569.79 "	481.79 "
Pecos River Railroad*	..... "	54.24 "
Panhandle & Santa Fe Railway†	179.16 "	124.92 "
Texas & Gulf Railway	125.49 "	125.49 "
Gulf & Interstate Railway of Texas	71.33 "	71.33 "
Concho, San Saba & Llano Valley Railroad	59.63 "	60.15 "
	10,961.23 "	10,771.45 "

*Operated by Panhandle & Santa Fe Railway under lease effective July 1, 1913.

†Formerly known as Southern Kansas Railway of Texas.

Increase during the year 189.78 miles.

The average mileage operated during the fiscal year ending June 30, 1914, was 10,908.52 miles, being an increase of 158.21 miles as compared with the average mileage operated during the preceding fiscal year.

In addition to lines covered by this report there were completed on June 30, 1914, 39.26 miles of additional line, all of which will be ready for operation on October 1, 1914.

The Company also controls, through ownership of stocks and bonds or purchase contract, other lines aggregating 228.92 miles, and is interested jointly with other companies in 593.85 miles.

For detailed statement of present mileage and of changes in mileage since last Annual Report, see pages 42 to 46.

INCOME STATEMENT.

The following is a summary of the transactions of the System for the years ending June 30, 1913 and 1914.

	1913.	1914.
Operating Revenues	$116,896,251.98	$111,109,769.86
Operating Expenses	77,642,534.73	73,469,333.68
Net Operating Revenue	$39,253,717.25	$37,640,436.18
Taxes	4,662,152.38	5,525,585.30
Operating Income	$34,591,564.87	$32,114,850.88
Other Income	2,515,623.96	2,174,353.12
Gross Corporate Income	$37,107,188.83	$34,289,204.00
Rentals and Other Charges	1,128,129.10	1,218,827.08
	$35,979,059.73	$33,070,376.92
Interest on Bonds, including accrued interest on Adjustment Bonds	13,825,325.40	12,886,412.23
Net Corporate Income (representing amount available for dividends and surplus and for necessary but unproductive or only partially productive expenditures)	$22,153,734.33	$20,183,964.69

From the net corporate income for the year the following sums have been deducted:

DIVIDENDS ON PREFERRED STOCK—		
No. 31 (2½%) paid Feb. 2, 1914	$2,854,345.00	
No. 32, (2½%) paid Aug. 1, 1914	2,854,345.00	$5,708,690.00
DIVIDENDS ON COMMON STOCK—		
No. 33 (1½%) paid Sept. 2, 1913	$2,914,732.50	
No. 34 (1½%) paid Dec. 1, 1913	2,916,637.50	
No. 35 (1½%) paid Mar. 2, 1914	2,925,877.50	
No. 36 (1½%) paid June 1, 1914	2,934,502.50	11,691,750.00
Appropriation for Fuel Reserve Fund		51,485.83
California-Arizona Lines Bonds Sinking Fund		12,721.10
Appropriated for Additions and Betterments		2,719,317.76
		$20,183,964.69

Surplus to credit of Profit and Loss June 30, 1913	$20,569,800.81
Profit and Loss Adjustments	.....
Surplus to credit of Profit and Loss June 30, 1914	20,569,800.81

Income from sources other than earnings from operation consisted of interest on cash in banks and sums collected as interest and dividends upon bonds and stocks of companies, the operations of which are not included in the System accounts.

During the fiscal year the sum of $120,000 in cash was received as the net proceeds of sales of land embraced in the Santa Fe Pacific Land Grant, but this was directly written off the book value of Railroads, Franchises and Other Property, and the transaction does not appear in the Income Account.

CAPITAL EXPENDITURES AND REDUCTION OF BOOK VALUES.

The total charges to Capital Account, as shown by the General Balance Sheet, page 26, at June 30, 1914, aggregated $651,428,708.11 as compared with $640,263,756.10 at June 30, 1913, an increase during the year of $11,164,952.01, which analyzes as follows:

Construction and acquisition of new mileage, including the acquisition of bonds and stocks of other railway and terminal companies:		
California, Arizona & Santa Fe Ry.	$ 7,462.57	
Concho, San Saba & Llano Valley R. R.	17,952.50	
Dodge City & Cimarron Valley Ry.	114,984.07	
Eastern Ry. of New Mexico	515,696.54	
Ft. Worth Union Passenger Station Co.	533.02	
Grand Canyon Ry.	14,633.62	
Gulf, Beaumont & Kansas City Ry.	702,500.00	
Joliet Union Depot Co.	10,000.00	
Minkler Southern Ry.	845,606.30	
Union Passenger Depot Co. of Galveston	360,000.00	
Union Terminal Co. of Dallas	3,000.00	
Verde Valley Ry.	80,483.24	
Western Arizona Ry.	170.13	$2,673,021.99
Additions and Betterments—System Lines:		
Right of Way, Station Grounds and Real Estate	290,158.15	
Widening Cuts and Fills, including Protection of Banks	315,666.39	
Grade Reductions and Changes of Line	117,651.55	
Bridges, Trestles and Culverts	461,976.65	
Ballast, including cost of spreading and putting under track	356,140.15	
Increased Weight of Rail	210,584.33	
Frogs, Switches, Track Fastenings and Appurtenances	435,338.48	
Additional Main Tracks	951,524.83	
Sidings and Spur Tracks	718,279.10	
Terminal Yards	418,982.97	
Track Elevation, Elimination of Grade Crossings, and Improvements of Over and Under Grade Crossings	*4,921.09*	
Interlocking, Block, and Other Signal Apparatus	470,291.61	
Telegraph and Telephone Lines	79,627.99	
Buildings, Shops, Dock and Wharf Property	1,594,440.34	
Shop Machinery and Tools	220,932.81	
Additional Equipment	6,437,635.13	
Betterments to Equipment	49,913.75	
Other Additions and Betterments	159,530.24	$13,283,753.38
Fuel Lands and Other Properties:		
Real Estate held for future use	$ 139,060.41	
Tie and Timber Lands	19,706.49	
Miscellaneous Items	59,811.11	$ 218,578.01
Other Investments		684,317.52
Total Charges		$16,859,670.90
Reduction of Book Values:		
Gulf, Beaumont & Kansas City Ry.	$ 702,500.00	
Santa Fe Pacific R. R.—Land Sales	120,000.00	
Texas & Gulf Ry.	2,250.00	
Ice Plant, Belen	9,950.00	
Ice Plant, San Bernardino	75,798.28	
Santa Barbara Tie & Pole Co.	21,455.98	
Fuel Lands	1,050,000.00	
Reserve for Accrued Depreciation	3,712,764.63	$ 5,694,718.89
Net Increase in Capital Account during the year		$11,164,952.01

Credits in italics.

The item of $6,437,635.13 for "Additional Equipment" analyzes as follows:

35 Locomotives	$ 999,603.63
122 Passenger-Train Cars	1,626,492.68
3,334 Freight-Train Cars	4,434,301.55
487 Miscellaneous Cars	174,041.64
	$7,234,439.50

Less—Value of equipment retired during the year as follows:

43 Locomotives	$171,336.85	
21 Passenger-Train Cars	84,528.23	
1,310 Freight-Train Cars	531,118.26	
31 Miscellaneous Cars	9,821.03	$ 796,804.37
		$6,437,635.13

MAINTENANCE OF EQUIPMENT.

The following statement shows the sums charged to Operating Expenses for Maintenance of Equipment during each year since July 1, 1896:

Year ending June 30.	Average Operated Mileage.	Total Expenditure.	Expenditure Per Mile.
1897	6,443.81	$3,443,884.82	$534.45
1898	6,936.02	4,659,277.99	671.75
1899	7,032.62	4,810,795.64	684.07
1900	7,341.34	5,267,832.40	717.56
1901	7,807.31	6,257,456.57	801.49
1902	7,855.38	7,864,951.25	1,001.22
1903	7,965.13	8,510,543.09	1,068.48
1904	8,179.59	10,006,135.41	1,223.31
1905	8,305.40	10,914,864.47	1,314.19
1906	8,433.99	10,720,040.43	1,271.05
1907	9,273.15	11,779,846.64	1,270.32
1908	9,415.01	14,246,621.44	1,513.18
1909	9,794.86	13,903,897.37	1,419.51
1910	9,916.33	15,560,047.44	1,569.13
1911	10,350.13	16,686,145.45	1,612.17
1912	10,627.92	16,521,231.41	1,554.51
1913	10,750.31	19,415,224.63	1,806.02
1914	10,908.52	19,100,724.51	1,750.99

For the year ending June 30, 1914, maintenance charges, including renewals and depreciation, averaged as follows:

Per locomotive	$4,463.93
Per locomotive mile	.1737
Per passenger car, including mail and express	1,174.63
Per passenger car mile	.0137
Per freight car	120.32
Per freight car mile	.0124

The foregoing average maintenance charges include a proportion of unlocated expenditures for Maintenance of Equipment charged to Superintendence, Shop Machinery and Tools, Injuries to Persons, Stationery and Printing, Other Expenses, and Maintaining Joint Equipment at Terminals. Repairs to motor equipment of motor coaches, which are chargeable to repairs of locomotives, are excluded in determining the locomotive averages. Refrigerator cars are not taken into consideration in arriving at freight car averages, such cars being operated by the Santa Fe Refrigerator Despatch Company, which bears the expense of their maintenance.

A statement of the locomotives in service and of their tractive power will be found on page 41.

MAINTENANCE OF WAY AND STRUCTURES.

The following statement shows the sums charged to Operating Expenses for Maintenance of Way and Structures during each year since July 1, 1896:

Year ending June 30.	Average Operated Mileage.	Total Expenditure.	Expenditure Per Mile.
1897	6,443.81	$6,282,923.15	$975.03
1898	6,936.02	8,281,397.88	1,193.97
1899	7,032.62	7,672,107.62	1,090.93
1900	7,341.34	6,354,372.10	865.56
1901	7,807.31	6,433,840.36	824.08
1902	7,855.38	6,141,466.39	781.82
1903	7,965.13	9,304,892.04	1,168.20
1904	8,179.59	9,170,234.07	1,121.11
1905	8,305.40	11,385,418.33	1,370.85
1906	8,433.99	12,475,407.97	1,479.18
1907	9,273.15	15,286,062.66	1,648.42
1908	9,415.01	14,120,828.02	1,499.82
1909	9,794.86	12,884,406.81	1,315.43
1910	9,916.33	17,807,136.20	1,795.74
1911	10,350.13	16,059,786.90	1,551.65
1912	10,627.92	16,076,833.75	1,512.70
1913	10,750.31	18,054,413.03	1,679.43
1914	10,908.52	15,308,780.25	1,403.38

COMPARISON OF OPERATING RESULTS.

The following is a statement of revenues and expenses of the System for the fiscal year ending June 30, 1914, in comparison with the previous year:

	Year Ending June 30, 1914.	Year Ending June 30, 1913.	Increase or Decrease.
OPERATING REVENUES:			
Freight	$73,638,388.01	$78,190,923.18	—$4,552,535.17
Passenger	28,497,232.68	29,425,922.44	—928,689.76
Mail, Express and Miscellaneous	8,974,149.17	9,279,406.36	—305,257.19
Total Operating Revenues.	$111,109,769.86	$116,896,251.98	—$5,786,482.12
OPERATING EXPENSES:			
Maintenance of Way and Structures	$15,308,780.25	$18,054,413.03	—$2,745,632.78
Maintenance of Equipment.	19,100,724.51	19,415,224.63	—314,500.12
Traffic Expenses	2,521,452.94	2,455,784.69	65,668.25
Transportation Expenses	33,818,432.83	35,135,649.15	—1,317,216.32
General Expenses	2,719,943.15	2,581,463.23	138,479.92
Total Operating Expenses.	$73,469,333.68	$77,642,534.73	—$4,173,201.05
Net Operating Revenue	$37,640,436.18	$39,253,717.25	—$1,613,281.07
Ratio of Operating Expenses to Operating Revenues	66.12	66.42	—.30

The following averages are deduced from tables set forth on pages 36 and 39.

The average tons of freight (revenue and company) per loaded car mile decreased from 19.14 to 18.75, or 2.04 per cent.

The average tons of freight (revenue and company) carried per freight-train mile (freight, mixed, and company-supply) decreased from 425.41 to 420.45, or 1.17 per cent.

The average freight revenue per revenue freight-train mile increased from $3.48 to $3.55, or 2.01 per cent.

The average passenger revenue per revenue passenger-train mile decreased from $1.24 to $1.17, or 5.65 per cent.

The average passenger train revenue per revenue passenger-train mile decreased from $1.54 to $1.45, or 5.84 per cent.

The tons of freight carried one mile (revenue and company) decreased 782,191,703, or 8.07 per cent., while miles run by freight cars (loaded and empty) in freight, mixed, and company-supply trains decreased 33,993,215, or 4.75 per cent., and the mileage of such trains decreased 1,591,321, or 6.98 per cent.

The number of passengers carried one mile decreased 14,824,376, or 1.12 per cent., while miles run by passenger cars in passenger and mixed trains increased 40,066, or .03 per cent., and the mileage of such trains increased 657,069, or 2.77 per cent.

The following is a consolidated statement of the business of the System for each fiscal year during the period since January 1, 1896:

Fiscal Year Ending June 30.	Average Miles Operated.	Gross Revenues, Including Income from Other Sources.	Expenses, Including Taxes, Rentals and Other Charges.	Interest on Bonds.	Net Corporate Income.
1897 (18 mos.)	6,443.81	$44,532,628.99	$36,038,455.30	$8,440,387.91	$53,785.78
1898	6,936.02	39,396,126.41	30,513,553.17	7,045,988.30	1,836,584.94
1899	7,032.62	40,762,933.47	29,332,964.11	7,241,972.00	4,187,997.36
1900	7,341.34	46,498,899.04	29,414,427.56	7,345,166.50	9,739,304.98
1901	7,807.31	54,807,379.78	34,502,039.87	7,830,810.83	12,474,529.08
1902	7,855.38	60,275,944.33	36,272,432.45	8,438,985.00	15,564,526.88
1903	7,965.13	63,668,390.99	40,635,576.48	9,134,485.24	13,898,329.27
1904	8,179.59	69,419,975.41	44,641,434.10	9,418,770.00	15,359,771.31
1905	8,305.40	69,189,739.65	47,835,883.50	9,611,510.09	11,742,346.06
1906	8,433.99	79,390,749.05	51,035,355.71	10,622,184.22	17,733,209.12
1907	9,273.15	94,436,574.68	61,779,916.16	11,487,934.70	21,168,723.82
1908	9,415.01	91,289,770.61	65,031,582.67	12,579,301.77	13,678,886.17
1909	9,794.86	95,424,091.89	61,458,019.13	13,548,081.93	20,417,990.83
1910	9,916.33	107,543,250.16	75,133,314.54	11,984,151.36	20,425,784.26
1912	10,627.92	110,322,328.13	77,001,227.38	13,660,859.50	19,660,241.25
1911	10,350.13	109,772,481.69	75,689,094.83	12,712,319,31	21,371,067.55
1913	10,750.31	119,411,875.94	83,432,816.21	13,825,325.40	22,153,734.33
1914	10,908.52	113,284,122.98	80,213,746.06	12,886,412.23	20,183,964.69

The following statement shows the gross operating revenues of the System (exclusive of income from other sources) per mile of road operated for each fiscal year since July 1, 1896:

Year Ending June 30.	Gross Operating Revenues.	Average per Mile of Road.
1897	$30,621,230.10	$4,752.04
1898	39,214,099.24	5,653.69
1899	40,513,498.63	5,760.80
1900	46,232,078.23	6,297.49
1901	54,474,822.61	6,977.41
1902	59,135,085.53	7,527.97
1903	62,350,397.28	7,827.92
1904	68,171,200.18	8,334.31
1905	68,375,837.25	8,232.70
1906	78,044,347.25	9,253.55
1907	93,683,406.91	10,102.65
1908	90,617,796.38	9,624.82
1909	94,265,716.87	9,624.00
1910	104,993,194.67	10,587.91
1911	107,565,115.62	10,392.63
1912	107,752,359.91	10,138.61
1913	116,896,251.98	10,873.75
1914	111,109,769.86	10,185.60

The following statement shows the development of the freight and passenger revenues of the System since July 1, 1896:

Year Ending June 30.	Freight Revenue.	Passenger Revenue.
1897	$22,067,686.77	$5,574,288.31
1898	28,588,716.76	7,347,361.59
1899	29,492,586.65	8,126,141.85
1900	33,729,332.83	9,334,661.57
1901	39,052,557.43	11,678,017.25
1902	41,815,607.05	13,439,384.57
1903	44,622,438.71	13,469,985.78
1904	47,762,653.23	15,433,773.63
1905	47,408,982.36	16,045,380.27
1906	54,598,902.82	18,013,988.56
1907	65,500,309.42	21,171,629.08
1908	61,848,638.51	21,643,427.49
1909	64,212,638.10	22,734,505.32
1910	71,194,055.59	25,437,181.98
1911	71,787,200.89	27,204,867.66
1912	71,529,574.67	27,453,525.41
1913	78,190,923.18	29,425,922.44
1914	73,638,388.01	28,497,232.68

PROPERTY INVESTMENT AND RATE OF RETURN.

The development of the Company's business and of its efficiency have been due principally to the very large expenditures (over $298,000,000) which have been made in the extension and improvement of the property since January 1, 1896. In order to make such expenditures, your Company has raised since 1896 over $217,000,000 of "new money" by the sale of bonds which are now outstanding or which (in the case of many of the Convertible Bonds sold) are represented by Common Stock now outstanding.

The following statement shows, for each year, the amount of investment, the amount of net income applicable to bond interest, dividends, improvement of property and strengthening of credit, and the rate of return which such net income represents on the amount of the investment.

Year Ending June 30th.	Property Investment.*	Income Applicable to Bond Interest, Dividends, Improvement of Property and Strengthening of Credit.†	Per Cent. Income of Property Investment.
1896 (6 months)	$372,104,262.77	$2,432,870.06	.65
1897	387,957,477.68	6,070,364.45	1.57
1898	392,169,842.02	8,871,947.26	2.26
1899	399,527,444.30	11,409,315.36	2.86
1900	407,187,811.22	17,064,850.91	4.19
1901	419,541,440.17	21,196,714.38	5.05
1902	439,911,035.33	23,921,018.14	5.44
1903	454,290,057.89	23,032,814.51	5.07
1904	466,273,139.34	24,778,541.31	5.31
1905	473,020,998.79	21,353,856.15	4.51
1906	496,782,342.35	28,355,393.34	5.71
1907	519,004,129.48	32,724,274.07	6.31
1908	541,727,328.96	25,633,510.34	4.73
1909	548,251,270.97	33,523,437.28	6.11
1910	579,793,768.23	32,387,712.39	5.58
1911	609,287,764.18	34,102,511.86	5.59
1912	621,869,989.29	33,321,100.75	5.36
1913	640,263,756.10	36,078,744.55	5.63
1914	651,428,708.11	33,070,376.92	5.08
Annual Average	$495,810,135.11	$24,288,073.19	4.90

*The amounts above shown as "Property Investment" do not include anything for necessary working capital such as materials and supplies and cash. Ordinarily such necessary working capital considerably exceeds $35,000,000.

In the years 1901 to 1908 the "Property Investment" was reduced by "writing off" sums aggregating $21,066,685.78, which sums are excluded from the "Property Investment" as above stated.

In the years 1910 to 1914, sums ranging from $8,211,433.32 in the former year to $19,790,186.11 in the latter year, representing depreciation of equipment accrued pursuant to the rulings of the Interstate Commerce Commission, have been deducted from the amounts shown as "Property Investment" and are excluded in the above statement.

†The "Income" shown above is determined after allowing for adjustments made through profit and loss.

The foregoing statement emphasizes the striking fact that the total net income is now barely in excess of five per cent. per annum upon the investment, and of course not all of this income can be distributed in the way of interest and dividends since it is desirable to appropriate a substantial amount of net income each year to Additions and Betterments for the due preservation of the credit of the Company.

The ability of your Company, under the conditions reflected by this statement, to pay six per cent. on the common stock is explained by the fact that it pays an average of very little more than four per cent. on its bonded debt, much of the bonded debt having been created when money could be borrowed at or near four per cent. But for several years it has been impracticable to borrow large amounts of money for railroad purposes at as low a rate or even as low as four and one-half per cent., and under present conditions it is believed the rate of interest which would have to be paid would be substantially greater.

CAPITAL STOCK AND FUNDED DEBT.

The outstanding Capital Stock (deducting stock in treasury) on June 30, 1913, consisted of:

Common	$190,836,500.00	
Preferred	114,173,730.00	
		$305,010,230.00

Issued during the year:

Common Stock issued in exchange for Convertible Bonds retired	4,975,000.00

Capital Stock outstanding June 30, 1914:

Common	$195,811,500.00	
Preferred	114,173,730.00	
		$309,985,230.00

The outstanding Funded Debt of the System (deducting bonds in the treasury) amounted on June 30, 1913, to.....$319,146,148.50

The following changes in the Funded Debt occurred during the year:

Obligations Purchased or Retired:

Serial Debenture 4% Bonds,		
Series K	$ 5,000.00	
Series L	270,000.00	
Convertible 4% Bonds	4,975,000.00	
Miscellaneous Divisional Bonds	702,500.00	
		5,952,500.00

Total System Funded Debt outstanding June 30, 1914.....$313,193,648.50

Interest charges for year ending June 30, 1915, will be approximately $12,809,000 or an average monthly charge of about $1,067,417. In making this approximation, exchanges of Convertible Bonds for Common Stock made since June 30, 1914, aggregating $364,000, are considered.

TREASURY.

Neither this Company nor any of its auxiliaries has any notes or bills outstanding.

The Company held in its treasury on June 30, 1914, $20,062,758.99 cash, and had available $3,780,000 General Mortgage Bonds, including bonds not yet certified by the Trustee. The Company also has in the treasury unpledged a large amount of stocks and bonds of other companies, of which part are carried in the balance sheet as Investments and part are included under Railroads, Franchises and Other Property.

FUEL RESERVE FUND.

The fund has been increased during the year by appropriations of income, as follows:

Amount to credit of Fund June 30, 1913	$1,726,846.19
Added during the year	51,485.83
In Fund June 30, 1914	$1,778,332.02

KANSAS SOUTHWESTERN RAILWAY COMPANY.

During the year your Company acquired from the Receivers of the St. Louis & San Francisco Railroad Company that company's interest in the stock and notes of The Kansas Southwestern Railway Company (the stock of which company has heretofore been owned jointly by your Company and the St. Louis & San Francisco Railroad Company). However, under the terms of the transfer the St. Louis & San Francisco Railroad Company and its successors have the option of re-acquiring such securities within five years from April 17, 1914, upon payment to your Company of one-half of the sums expended by it in the maintenance, operation and improvement of the property.

MINKLER SOUTHERN RAILWAY.

This line, which was under construction at the date of the last annual report, extending from Minkler to Exeter, California, with branch line connecting with the Visalia Branch at Cutler, a total of about 40 miles, has been completed to Exeter since the close of the year and will be opened for traffic October 1, 1914.

NORTHWESTERN PACIFIC RAILROAD COMPANY.

Reference was made in the last annual report to the construction of the line of this company (whose capital stock is owned, one-half by your Company and one-half by the Southern Pacific Company) from Willits to Shively, a distance of 105.64 miles. Of this mileage 64.47 miles had been constructed at the beginning of the year, 29.10 miles were completed during the year, leaving only 12.07 miles still to be constructed, the grading for which was nearing completion at June 30, 1914.

OAKLAND WHARF PROPERTY.

In order to provide for the increasing business of your Company at San Francisco Bay points, 30 acres of land with extensive water frontage, situated at Oakland, California, have been acquired, upon which your Company is at present erecting necessary facilities for the handling of business offered it.

WEST TEXAS CONSTRUCTION.

The extension of the Coleman-Lubbock Line from Lubbock, Texas, to Texico, New Mexico, was completed during the year and was opened for traffic March 1, 1914. The completion of this line closes the gap between the lines of The Pecos and Northern Texas Railway and the Gulf, Colorado and Santa Fe Railway Companies running southeast to the Gulf of Mexico and the lines of your Company extending west from Texico to the Pacific Coast, and places in service the shortest line between Galveston, Texas, and San Francisco, California. It is expected that through passenger service over this line between the Gulf of Mexico and the Pacific Coast will be inaugurated during the current year.

ST. LOUIS, ROCKY MOUNTAIN AND PACIFIC RAILWAY.

On August 1, 1913, your Company took possession of this line under an agreement with the St. Louis, Rocky Mountain and Pacific Company (the owner of all of the capital stock of the St. Louis, Rocky Mountain and Pacific Railway Company) under a contract of purchase, provided transfer can be made free of all liens, the consideration being $3,000,000 of 4 per cent. fifty-year bonds of your Company secured by a mortgage on the St. Louis, Rocky Mountain and Pacific Railway. This line is 106.04 miles in length, extending from Des Moines, New Mexico, to Ute Park, New Mexico, with two branches, one to Raton and one to Koehler, New Mexico. This line serves a coal mining territory, a large part of the product of which is used for company fuel and the balance of which is distributed chiefly to points on your Company's lines.

ADDITIONAL MAIN-TRACK MILEAGE.

The mileage of second track in operation on June 30, 1914, was 974.65 miles as compared with 898.32 at the close of the preceding year, being an increase of 76.33 miles.

TAXES.

Special attention is called to the menacing increase in the taxes imposed upon railroad property. Your Company's taxes for the year 1914 were $5,525,585.30. This represents more than 14¼% of the total net income which the Company had available for the payment of taxes, interest, dividends, etc.

Your Company's taxes have increased 188% in the last ten years, although the investment in the property has increased in that time less than 40% and although the net income available for taxes, interest and dividends has increased in that time less than 45%.

In the last five years the Company's taxes have increased over 83%, although the investment has increased less than 19% and the net income available for taxes, interest, dividends, etc., has increased less than 5%.

While there are various contributing causes to this condition (including the expiration of some tax exemptions in Arizona and New Mexco), the principal cause, which continues in apparently increasing force, is the disposition to increase public expenditures shown by practically all governmental agencies of the States, cities, counties and taxing districts (not to mention the Federal Government, whose tax burdens to a large extent fall on the railroads indirectly and therefore are not fully reflected in the amount of railroad taxes paid). Governmental agencies generally counsel the railroads to increase their economies and to improve their efficiency, and stern necessity, even if there were no other motive, has forced the railroad companies to do this; but there is nothing to indicate that the governmental agencies themselves have practiced what they have preached in this respect. The evidences of extravagance in all grades of governmental activity are very numerous and the evidences of governmental economies are exceedingly rare. The result is proving dangerously burdensome to the railroad properties of the country.

The movement which has for its aim the assessment of all property at full value has indirectly largely contributed to the prevailing extravagance. Rarely have tax rates been reduced in the same measure that assessments have been increased. Even where State bodies have increased assessments of all property two and three fold it has been exceedingly difficult to bring about any reduction of local rates. Although still in its infancy the good roads movement has already received large appropriations. Expenditures for this purpose are likely to assume large proportions in the near future.

GENERAL.

Your Directors feel that heavy responsibilities devolve on them in the present state of governmental activities directed at the railroad industries. It has been found almost impossible to make even an approximate estimate of the cost of "regulation" which has been imposed on us by the State and National governments. Without criticising the policy of proper supervision, it is fair to say that many of the laws are not only expensive but in the opinion of your officers unnecessary and superfluous. Constant whittling of rates, plus constant legislation which adds to your expenses without adding to revenue, have had their inevitable effect. Your own Company has been less crippled by these conditions than some of those less fortunate, but by reference to page 14 it will be seen on how narrow a margin we have been working. There are some evidences of a disposition on the part of those in authority to realize that great injustice has been done in the guise of regulation and that it is time to call a halt, but the relief which the railroads need cannot come until this disposition shall be transmuted from mere expressions of friendliness into positive remedial measures. General words of sympathy will accomplish nothing if governmental agencies continue in each specific instance to impose additional burdens or to find excuses for not granting specific relief. Hence your Directors deem it their duty again to warn stockholders that their interests are more endangered by the various governmental regulations than from any other source.

But in making the foregoing statement the threatening attitude of the labor organizations must not be lost sight of as a vigorous second in the menace of the times. Your Company has always shown the utmost consideration for its employes, and as a class they are a credit to themselves and to the road. Left to themselves there would be little of which to complain, but the organizations as a body have been aggressively demanding increased wages for their members with no regard for the ability of their employers to pay, and have been steadily demanding, and frequently with success, many varieties of legislation, such as full-crew bills, designed to increase operating expenses. Between the repressive forces of Government and the demands of organized labor it is evident that the sum remaining as the share of invested capital is in serious danger.

Under these conditions it is the intention of your Directors to make no additions or betterments, however desirable, which can not be paid for out of current earnings, and to continue the policy of incurring no floating debt.

It is the sorrowful duty of your Board to record the death on March 22, 1914, of Byron L. Smith, a member of the Board of Directors since November 14, 1900. His active interest in the affairs of your Company and his knowledge of the territory served by it made him a most valuable counselor. He was a man who realized his responsibilities as a director and discharged his full duty in serving the interest of others in all his business affiliations. It is appropriate that there be placed before the stockholders this expression of appreciation of his services in their behalf, and of the loss which has been sustained by his death.

Your Directors take pleasure in acknowledging the faithful and efficient services of the Company's officers and employes during the year.

EDWARD P. RIPLEY,
President.